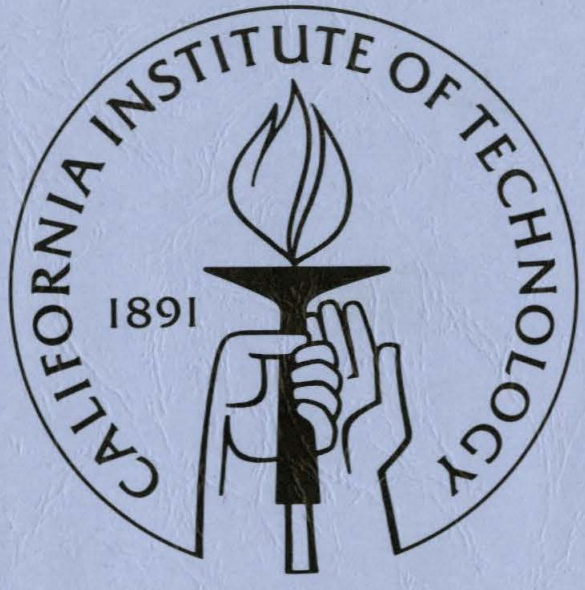
PALOMAR OBSERVATORY

HALE TELESCOPE

Prime Focus Nebular Spectrograph

Log Book



PALOMAR OBSERVATORY
CALTECH ASTROPHYSICS PREPRINT

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Foreword

The Prime Focus Nebular Spectrograph was used at the Hale telescope from June 1950 to June 1973 -- a span of 33 years -- by which time it was supplanted by Cassegrain spectrographs equipped with image intensifiers.

In 1981, the instrument (without the two semi-solid Bowen-Schmidt cameras) was given on a long-term loan to the Jet Propulsion Laboratory for use at the Table Mountain Observatory.

This book consists of copies of the observing log in which the exposures were recorded. The two original log books have been deposited in the Caltech Archive.

Spectra taken with the Prime Focus Nebular Spectrograph have the letter **N-** as a prefix to the sequential plate number. It is probable that most of the plates taken with the instrument are still in the hands of the observer of record, although some may have been filed in the spectrogram collection at the offices of the Observatories of the Carnegie Institution of Washington in Pasadena, a practice that dates from the joint operations of the Palomar and Mount Wilson Observatories (later, the Hale Observatories) by Caltech and CIW.

April 28, 1995

Observer Identification Key

AHV	Vaughan
AJD	Deutsch
Arp	Arp
ARS	Sandage
AS	Sandage
Co	Code
GWP	Preston
H	Humason
H-S	Humason and Sandage
JLG	Greenstein
Mi	Minkowski
Mü	Münch
MVP MJP	Penston and Penston
O	Osterbrock
RJB	Brucato
RPK	Kraft
S	Sandage
Sc	Schmidt
WS	Sargent
Z	Zwicky

200 - Inch

"N" Series

Volume I.

Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
Note:- Pedestal focus was 5.00. Beginning Aug. 15, 1956, pedestal cut off, focus at 72 and dial focus 1.14 satisfactory JLG										
Note. 9/20/62 3" Camera modified with field flattener inserted in solid block. Plates N 7236 on have this change JLG										
Scale on inside back cover MLH										

	No.	Object	Mag.	Sp.	R. A.	Dec.	Date 1950	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N	1	NGC 5982	Neb.		15 37 30	+59 32	June 5	10:06	11:06	60	He 15-15	S.Bl.	6.0	.17	1°	0W38	3	Baked IIa-0	H	40	Closure 0.03. End #134 Cage 1.14
	2	cl1534+3749	"		15 34 48	+37 51	June 7	8:33	13:33	300	He 10-10-10	"	"	.18		3W14	2-1	"			Foc., ped. 2.0, tube 0 Temp Ped. 5.0
	3	Cor Bor Cl.	"	#2	15 20 17	+27 50	July 9	8:50	11:50	180	He 17-17	"	"	.15		4W03	3-2	"		G	Neb. #2. Temp. 63.1. Foc. 1.
	4	NGC 7171	"		21 58 18	-13 31	Oct. 5	7:56	11:26	210	He 20-20	"	"	.14		1W38	3-1	"	H	G	New He tube @ 350 v
	5	" 7314	"		22 33 0	-26 18	Oct. 6	7:03	10:03	180	25-25	"	"	.14		0W44	3-2	"		240	Br. [illegible] of 2 south + west of
	6	" 300	"		0 52 36	-37 58		10:58	13:20	142		"	"	.14		1W43	2	"		240	Eng. [illegible] tch.
	7	" 6921	"		20 26 24	+25 33	Oct. 7	6:51	7:26	35		"	"	.12		0W17	5	"		60	
	8	" "	"		"	"		8:11	9:11	60		"	"	.14		2W03	5	"		G	
	9	" 45	"		0 11 24	-23 27		10:01	14:18	257		"	"	"		3W25	5-4	"		"	Br. em. 30" fol. + 45" of nucl.
	10	" 6710	"		18 48 36	+26 47	Oct. 8	8:01	9:16	75	20-20	"	"	.16		3W50	4-3	"		"	
	11	" 514	"		1 21 18	+12 39		10:16	13:58	222		"	"	"		1W59	6-3	"			Cage elevator stopp
	12	" 221	"		0 40 0	+40 36	Dec. 11	7:46	8:30	44	45-45	"	6.3	.14	0°	1W24	3-4	"	H		Exp. ± 2m Very thick, neb gone ma
	13	" "	"		"	"		10:26	10:37	11		"	"	"	"	3W32	2	"			Exp. ± 1m. Clouded ov
	14	" "	"		"	"	Dec. 12	6:21	6:23	2	He 30-30					0E38	3	"			Base @ 0°
	15	" "	"		"	"		6:55	6:56	30sec						0E05	3	"			
	16	" "	"		"	"		7:25	7:26	1						0W25	4	"			
	17	" "	"		"	"		7:55	7:56	45sec						0W55	3	"			Cloudy later.
							1951														
	18	NGC 2314	Neb.		7 3 48	+75 19	Jan. 1	8:30	9:45	75	He 35-35	S.Bl.	6.2	0.12	0°	2E22	1-<1	Baked IIa-0	H	150	Base 90°. Correctio
	19	2300			7 14 42	+85 50		10:59	12:30	91						0W13	1-<1			G	to base rot. +1°
	20	4192			12 11 18	+15 11	Jan. 3	14:41	16:11	90				0.14		0E54	2			"	Direct earlier.
	21	1278			3 16 26	+41 23	Jan. 4	7:06	8:11	65	He 30-30					0W04	1-<1				Fogged over.
	"	"			"	"	Jan. 5	6:24	9:06	162						1W03	1			3h	Cont. from 4th
	22	2314			7 3 48	+75 19		10:02	12:02	120						0W13	<1			100m	Windy
	23	2985			9 45 48	+72 29		12:51	15:00	129						0W27	<1			100m	
	24	1395			3 36 18	-23 11	Jan. 6	6:50	8:20	90						0W01	1			G	
	25	cl. 0705+3504		#1	7 4 24	+35 8		10:08	10:38	30				0.13		1E09	1-<1				Gem Cl. Neb. #1. Dial p
	"	"			"	"	Jan. 7	7:56	10:04	128						0E49	2-1			F	Thick sky last hr
	26	NGC 2339			7 5 27	+18 50.9	Feb. 4	9:01	11:25	144				0.15		1W03	1-<1		H	G	
	27	IC 342			3 41 54	+67 57	Feb. 5	7:06	7:26	20	He 38-38			0.12		0W59	1-2				
	28	Cl. 0855+0321			8 55 17	+3 21.3		9:25	13:55	270				0.13		2W15	2-1			5h	Hydra Cl. Gr. of 3 ft. neb. on s
	29	NGC ~~4461~~ ~~4458~~			12 26 28	+13 26.2		15:05	16:05	60						0W55	2-1				
	30	IC 342			3 41 54	+67 57	Feb. 6	6:39	7:09	30						0W46	1			G	Widened. s fol. 44.
	31	NGC 2974			9 39 54	-3 29		9:49	10:49	60						1E51	1-<1			40	
	32	Cl. 0855+0321			8 55 17	+3 21.3	Feb. 9	8:45	14:00	315	20-20-20			0.14		2W36	4-2				Hydra Cl. Same as
	33	NGC 4365			12 21 48	+7 34.6		15:04	15:24	20	60			0.13		0W33	2				Thick at end

No.	Object	Mag.	Sp.	R. A.	Dec.	Date	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt / Base	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
						1951											Baked			Base 144° # Thick ai
N 34	Cl. 1055+5702	Neb.	1+2	10 55 6 (Dial)	+57 1.9	Feb. 10	10:38	15 12	274	He 20-20-20	S.Bl.	6.2	0.13	0°	1W 54	2-<1	IIa-0	H	G	Urs. Maj. 2 Cl. Times.
35	NGC 2787	"		9 14 55	+69 25	Mar. 4	7:51	8:21	30	"		6.1	0.14	0°	1E 52	2-1	"	H	45	Bagade #24 in → Urs Maj
36	Cl. 1145+5600	"	#24	11 44 43	+56 0.5		9:48	14:10	262	30-30-30		"	"	180°	1W 27	2-1	"		180	Clouded over. #1 Cl.
37	Cl. 1239+1852	"	#4	12 38 43	+18 51.5	Mar. 6	10:22	13:05	163	30-30		"	0.13	"	0E 18	1	"		G	Anon. 4.
38	"	"	#5	12 38 47	+18 52.5		13:10	16:00	170	"		"	"	"	2W 32	1-2	"		"	" 5. Thick at end.
39	NGC 2460	"		7 52 40	+60 30	Mar. 7	7:23	8:13	50	"		"	"	"	0E 26	3-1	"		60	Clouded over at end.
40	4365	"		12 21 50	+7 35	Apr. 2	8:37	9:37	60	"		"	"	"	1E 51	2	IIa-0	H		Thick sky.
41	Cl. 1534+3749	"	#1	15 34 26 (Dial)	+37 47.6	Apr. 6	11:40	16:00	260	"		"	"	121¼	1W 36	2	Baked IIa-0		330	Anon 1. Fog earlier
42	Cl. 1304+3110	"	#1	13 3 33 (dial)	+31 9.0	Apr. 7	9:16	15:46	390	20-20-20		"	"	172¼	3W 27	2-4	"		G	Anon 1 = Gr. of 3 on slit
43	Cl. 1228+1050	"	#1-2	12 28 24	+10 50	Apr. 8	9:03	14:33	300	"		"	"	287½	3W 21	1-<1	"		F	Anon 1 and 2 on slit.
44	Cl. 1431+3146	"	#4	14 30 33	+31 49	Apr. 10	10:56	16:00	364	"		"	"	132	2W 36	4-2	"		G	Anon. 4 in Boo Cl.
45	NGC 4125	"		12 5 30	+65 27	Apr. 30	9:00	9:35	35	"		"	"	180	0W 16	1-<1	"		"	
46	4291	"		12 18 6	+75 39		9:44	10:14	30	"		"	"	"	0W 42	1	"		"	
47	4866	"		12 56 58	+14 27		10:29	10:59	30	"		"	"	"	0W 48	1-2	"		"	
48	5363	"		13 53 36	+5 30		11:44	13:44	120	"		"	"	"	2W 37	1-2	"		"	
49	6661	"		18 32 26	+22 52		14:03	15:40	97	"		"	0.15	"	0E 05	1-3	"		"	N fol. e-2
						1952													Grating	
50	NGC 2300	Neb		7 16 6	+85 50	Feb. 19	6:58	7:10	70	He 30-30	S.Bl.	7.3	0.11	90°	0E 56	2	IIa-0	H	8°0	Grating spectrp. cloud
51	Anon	"		8 55 38	+3 23		10:27	12:27	120	"		"	"	71°	3W 40	2-4	"		"	Blue neb. in Hyd. Cl. ove
52	"	"		"	"	Feb. 20	7:18	11:00	242	He 30-30-30		7.5	"	"	0W 18	2-1	"		"	" " " " "
53	Anon	"		10 0 22	+20 42.5		12:04	14:45	161	"		"	"	180°	3W 10	2-1	"		"	Thick most of time
54	Em. in NGC 2403	"		7 31 57	+65 44.2	Feb. 21	9:56	13:00	184	"		"	"	"	3W 48	2-1	"		"	No. 6. N + prec. nucl.
55	Cl. 1431+3146 Anon	"	#1	14 30 54	+31 46.4		13:36	16:51	195	"		"	"	"	0W 40	2-1	"		"	Neb #1 in Boo Cl.
56	Cl. 0855+0321	"		8 55 44	+3 22.4	Mar. 20	8:36	12:06	210	He 10-10		7.0	0.09	"	3W 21	2-1	Baked IIa-0		8° 10'	Hydra Cl. Same as Nze, Gr. of 3 on slit.
"	"	"		"	"	Mar. 21	7:25	11:55	270	10-10		"	"	"	3W 16	1-<1	"		"	
57	NGC 4874	"		12 57 15	+28 14		12:45	15:15	150	15-15		"	0.10	270°	2W 33	<1	"		"	High wind. Coma C No. 14, S of
58	Em. in NGC 2403	"		7 32 51	+65 39	Mar. 22	7:30	9:00	90	"		7.2	0.11	180°	1W 42	<1	"		"	" " . nucl
59	NGC 4860	"		12 57 6	+28 23		9:45	11:20	95	"		"	"	"	1E 22	<1	"		"	" " . Coma Cl
60	4865	"		12 57 22	+28 21		11:35	14:00	145	"		"	"	"	1W 16	<1	"		"	" " " . " "
61	Boss 10682	7.7	Go	7 51 34	+34 45	Mar. 23	7:45	7:47	1/3, 9, 27 sec.	120		"	0.07	"	0W 14	1-2	IIa-0 Baked		8°45'	4 exposures.
62	" "	"	"	"	"		7:55	7:58	1/3, 9, 27 sec.	30		"	"	"	0W 25	1-2	IIa-0		"	" " " .
63	NGC 3640	Neb		11 18 30	+3 31		8:18	9:18	60	65-15		"	0.11	"	1E 42	1-2	"		8°0	
64	NGC 4798	"		12 5 ~~2 49~~ 2 46	+27 ~~41~~ 39		9:36	12:26	170	"		"	"	"	0E 08	1-<1	"		"	Coma Cl. Thick at end.
65	Cl. 1520+2754	"	#2	15 20 18	+27 54		12:57	16:10	193	"		"	"	"	1W 09	1-3-1	"		"	No. 2 in Cor Bor Cl
66	Sex. System	Em.		10 8 48	-4 28 (dial)	Apr. 17	8:11	10:11	120	Ne 5-5 He 20-20		7.7	0.11	"	2W 01	3-4	"	H	"	Em. patch No. 1.
67	Cl. 1520+2754	Neb.	#6	15 20 28	+27 52 40		14:15	16:15	120	He 20-20 Ne 5-5		"	"	"	2W 54	3-2	"		"	No. 6 in Cor Bor Cl
68	Sex. System	Em.		10 8 48	-4 28	Apr. 18	7:46	10:21	155	He 20-10		"	"	"	2W 14	3	"		"	Em. patch No. 2

	No.	Object	Mag.	Sp.	R. A.	Dec.	Date 1952	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt Grating	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N	69	Cl.1520+2754	Neb.	#1	15 20 2	+27 50 35	Apr. 18	11:02	13:30	148	He 15-15	S.Bl.	7.7	0.11	8°0	0W13	3	Baked IIa-0	H	G	No.1 in Cor.Bor Cl.
	70	" "	"	#2	15 20 24	+27 54 20		13:39	16:00	141	" "	"	"	"	"	2W43	3	"		G	No.3 " " " "
	71	IC 3400	"		12 53 24	+27 30 37	Apr. 20	10:00	11:25	85	" "	"	"	"	"	0W45	1-2	"		1h	Coma Cl. " Fog earlier. later.
	72	NGC 4881	"		12 57 44	+28 30 10	Apr. 21	7:39	8:27	48	" "	"	"	"	"	2E17	2-3	"		G	Coma Cl.
	73	" 4895	"		12 58 5	+28 27 30		8:40	9:10	30	" "	"	"	"	"	1E34	3	"		P	" "
	74	" 4486	"		12 28 28	+12 39 40		9:35	10:55	80	" "	"	"	"	"	0W41	3-4	"		25m	Virgo " Base 108°. Bar or jet.
	75	Cl.1520+2754	"	#5	15 20 32	+27 51 40		13:12	16:00	168	" "	"	"	"	"	2W54	4-3	"		G	No.5 in Cor.Bor Cl.
	76	NGC 4365	"		12 22 5	+7 35 40	Apr. 24	8:11	9:06	55	" "	"	"	"	"	1E10	1-2	"		G	
	77	" 4874	"		12 57 20	+28 13 20		9:25	10:55	90	" "	"	"	"	"	0W23	1-2	"		"	Coma Cl. 20m lost acct. of clds.
	78	" 4486	"		12 28 28	+12 39 40		11:11	11:31	20	Ne 10 sec. He 15-15	"	"	"	"	1W29	2	"		"	Virgo Cl. Base 29°.5 For bar.
	79	Cl.1520+2754	"	#8-9	15 20 41	+27 51 00		12:07	15:30	203	He 15-15	"	"	"	"	2W35	2-1	"		"	Cor.Bor Cl. No.8+9 on slit.
	80	Cl. 1520+2754		#15	15 20 10	+27 53	May 21	10:27	14:38	251	" 20-20	"	"	0.12	"	3W32	3-4	"	H	"	No.15 in Cor.Bor Cl.
	81	Radio Cygnus A	"		19 57 45	+40 35 44	Aug 22	8:10	12:10	240	Ne 2-2	"	7.45	"	18°30'	2W32	4-7	103aF3	M		Grating #1
	82	Radio Cass			23 21 12	+58 32 06	Aug 23	8:15	11:45	210	Ne 1-1	"	"	"	"	1E12	2-4	103aE			Fil.4 p.a 88°.4
	83	" "			"	"		12:43	15:58	195	" "	"	"	"	"	3W01	4-5				Fil.41 p.a. 93.2
	84	" "			"	"	Aug 24	8:00	13:20	320	" "	"	"	"	"	0W27	2-4				Fil.8 (cf 83) Cirrhus 15% occasional clouds, hung at en
	85	Radio Cygnus A			19 57 45	+40 35 44	Sept 9	7:15	9:45	150	He 20 20	"	7.55	0.13	7°0	1W18	1	IIaO 2 Red			
	86	NGC 6384	Neb.		17 30 06	+7° 7' 5"	Sep. 12	7:20	8:00	40	He 20-20	"	"	0.12	8°0	2W11	2-3	IIa-0	H	G	Poor definition.
	87	M31-Cl.#140	cl.		0 47 03	+41 20 40		9:15	9:55	40	" "	"	7.70	"	"	3E11	2	"		"	" " .
	88	IC 1302	Neb		19 29 47	+35 42.2	Sept. 13	7:32	9:00	88	" "	"	7.10	"	"	1W16	2-3	"		"	Base 216°. Neb. 1+2 onsli.
	89	Cl.0106-1536	"	1-2	1 6 16.5	-15 36.2		10:44	13:30	164	" "	"	"	0.13	"	0W09	1-2	"		"	Dbl., south preceding edge.
	90	NGC 1273	"		3 16 16	+41 23.0		14:05	16:00	115	" "	"	"	"	"	0W30	2-1	"		90m	Per. Cl.
	91	" 7331	"		22 34 48	+34 11.0	Sept. 14	7:11	7:30	19	" "	"	"	"	"	3E16	4	Baked IIa-0		15m	
	92	" 7319	"		22 33 48	+33 44.8		7:50	9:00	70	" "	"	"	"	"	1E43	4-5	"		G	
	93	Cl.0025+2223	"	#4	0 24 49	+22 23.0		9:51	15:00	309	He 10-10	"	"	"	"	2W25	3-5	"		"	Neb. #4.
	"	"	"		"	"	Sept. 15	8:42	13:42	300	" 10-10	"	"	"	"	1W11	2-4	"		G	
	94	NGC 6930	"		20 30 40	+9 43	Sept. 16	7:23	8:29	66	20-20	"	"	0.14	"	0E05	4-5	"		"	star at south end of slit (whitened)
	95	Anon	Neb		0 47 6	+42 20.3		9:06	13:15	249	" "	"	"	"	"	0W25	5-6	"		"	Blue neb. near M31
	96	Radio Cas			23 21 12	+58 32 06	Sept 23	7:59	11:59	240	Ne 1 1	"	"	"	18°15'	1W3	2-3	103aE	M		Fil 3 p.a 109°
	97	Anon	Neb		2 19 57	+41 8 48		13:00	16:30	210	" "	"	"	"	"	2W35	4	"			p.a 135° High condensations on ring
	98	"	"		"	"	Sept 24	11:34	12:19	45	He 20 20	"	"	"	8°0	1E33	2-3	IIaO			Eo
	99	"	"		"	"	"	12:50	16:30	220	" "	"	"	"	"	2W40	3-5				p.a 135° brighter cond. on edge of ring
	100	Wolf-Mellotte	cl.		23 59 16	-15 43.0	Oct. 20	7:12	7:42	30	He 15-15	"	7.1	0.13	8.0	2E06	3	Baked IIa-0	H	45s	Cluster.
	101	Cl.0138+1840	Neb.	#1	1 38 2	+18 39.7		8:58	16:00	*345	" 7-8	"	"	"	"	4W34	2-4	"			*1h 17m out for direct.
	"	"	"		"	"	Oct. 21	7:33	12:09	*240	" 7-8	"	"	"	"	0W45	2-4	"		G	*36m out for direct. Neb. No.1
	102	Star in NGC 2403	"		7 33 13	+65 36.2		13:40	16:30	170	" "	"	"	"	"	0E47	2-3	"		G	Em. 260" S + 37.5 E of nuc

No.	Object	Mag.	Sp.	R. A.	Dec.	Date 1952	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt Grate.	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 103	Wolfe-Melotte	Neb		23 59 13	-15 42	Oct. 22	6:52	7.42	50	He 18-18	S.Bl.	7.1	0.13	7°15'	1E 59	2-3	Baked IIa-0	H	G	cluster in.
104	Anon	"		0 47 4	+42 19.2		8:59	15:30	331*	" 8-8	"	"	"	8°	5W 02	4-5	"		G	*60m out for Cassidirect. Red neb. near M31. Whitfo
"	"	"		"	"	Oct. 23	7:00	14:45	315*	" 8 8	"	"	"	"	4W 21	6-7	"		G	*150m out for Cassedirect. stopped by clds.
105	Wolfe-Melotte	"		23 59 16	-15 40.7	Nov. 18	6:45	10:15	210	He 40-40-40	3"S	7.0	0.09	7°45'	2W 18	<1	IIa-0	H	10h	Cl. prec. system
106	NGC 221	"		0 40 2	+40 38	Nov. 19	6:28	6:58	30	"	"	"	"	"	1E 35	1-2	"		15m	
107	Anon (Zwicky)	"		23 39 28	-3 50.3		7:19	8.49	90	He 15-15	S.Bl.	7.6	0.12	8°0'	1W 27	2	Baked IIa-0		G	N. fol. neb. 3'S+6'E of IC
108	Anon (Zwicky)	"		23 39 16	-3 53.6		9:09	10:25	76	"	"	"	"	"	2W 54	2	"		?	S. prec. neb. 6.2S+2.5E
109	IC 1727	"		1 44 45	+27 7.2		11:01	14:05	184	"	"	"	"	"	4W 30	2-1	"		G	Em. in S fol. end.
110	Nova Gem (1912)	15±		6 51 38	+32 13.5		15:08	16:00	52	He 60-60	3"S	7.0	0.09	7°45'	1W 17	2	IIa-0		G	
111	NGC 224	Neb.		0 40 4	+41 7.2	Nov. 20	6:18	8:48	150	"	"	"	"	"	0W 20	2	"		"	If clear 45m should do. Thick, then clouded over
112	Cl. 0348+0613	"	#1	3 48 12	+6 10.2	=1953= Jan. 9	6:53	10:25	152	He 15-15	SBl.	7.6	0.13	8°0	2W 07	3-2	Baked IIa-0	H	G	Neb. #1. Mirror v
113	Em. in NGC 2403	"		7 31 43	+65 44.2		11:19	12:19	60	" 20-25 Ne 5-5	"	"	0.11	8.0	0W 19	2-1	"		"	poo Em. patch #5.
114	~~Em. in NGC 2403~~ Anon Star 2403	18v5	±K3	7 29 49	+65 46.0		13:15	15:15	120	Hc 20-25 Ne 2-3	"	"	"	"	3W 17	2-1	"		"	Ft. IS type star. Widened.
115	NGC 1049	Cl.		2 37 46	-34 24.3	Jan. 11	6:32	6:52	20	He 15-15	"	"	0.13	7°45'	0E 08	1	"		"	Br. Cl. in Fornax Sy. Widened. out of focus.
116	Fornax Syst	"		2 38 7	-34 41.0		7:04	7:19	15	"	"	"	0.12	"	0W 20	1	"		N.G.	Ft. Cl. in Fornax Syst
117	Em. in NGC 2403	Neb.		7 31 0	+65 45.4		8:12	11:12	180	He 22-22	"	"	"	"	1E 20	2-3	"		G	Em. No. 1+2. Thick.
118	NGC 1049	Cl.		2 37 46	-34 24.3	Jan. 12	6:25	7:10	45	He 75-75	3"S	7.0	0.11	7°30'	0W 15	1	"		1h	Br. Cl. in Fornax Sy
119	Anon	Neb.		4 38 2	+4 8.4		7:28	9:28	120	He 15-15	S.Bl.	7.6	0.13	7°15'	0W 22	2	"		1h	Thick at end.
120	L 886-6	16.0		6 59 24	-6 23.1	Feb. 9	8:16	8:46	30	" 12-12	"	7.3	0.12	7°20'	0E 40	<1	"	H	40	
121	NGC 2146	Neb.		6 10 42	+78 22		9:10	10:40	90	" " "	"	7.3	0.14	8°0'	2W 05	<1	"		G	
122	Cl. 1145+5559	"	#25	11 44 40	+55 55.2		11:20	15:32	252	" "	"	"	0.13	"	1W 23	<1	"		3h	Urs Maj No. 1. Neb. sky 30-
123	Cl. 0925+2044	"	#9	9 24 40	+20 43.7	Feb. 10	8:00	14:00	360	He 10-10-10	"	"	0.13	8°45'	2W 43	1-2	Baked IIa-0			Neb. #9. Clouded ov sky 24-3
"	"	"	"	"	"	Feb. 11	7:25	15:45	500	10-5	"	"	"	"	4W 01	2-<1				±3h of thick sky
"	"	"	"	"	"	Feb. 13	7:15	15:45	510	5-5	"	"	"	"	4W 05	2-4			N.G. 35h	Total exp. 22h 50m. sky 28- Like sky 27-30.
124	Cl. 0855+0321	Neb.	#1+1A	8 55 38	+3 21.3	Feb. 14	8:35	15:00	385	He 5-5	"	"	0.14	8°10'	3W 53	2-3	Baked IIa-0			Base 160° sky 28-32
"	"	"	"	"	"	Feb. 15	8:24	15:00	396	8-6	"	"	"	"	3W 58	2			O.K.	Clds. earlier. Total exp. 1 sky 40-
125	Cl. 0855+0321	"	"	"	"	Feb. 16	7:13	13:58	405	He 8-8-8	"	"	0.15	"	3W 04	2-<1	103a-0 Baked		G	Base 160°. Thick at sky 31-34
126	Cl. 0925+2044	"	#1	9 25 43	+20 45.5	Mar. 9	7:27	14:27	420	He 5-5-5	"	7.2	0.15	8°45'	4W 27	2-3	IIa-0	H		Neb. #1. Base 180°. 8, sky 36
"	"	"	"	"	"	Mar. 11	7:29	11:29	240	" 5-5	"	"	"	"	1W 34	3-4			G	
127	Cl. 1145+5559	"	#7	11 45 50	+56 2.2		12:30	14:30	120	" 15-15	"	7.3	"	8° 0'	2W 17	3-2			2h	stopped by clds. Urs Maj. Cl. No. 1.
128	NGC 1453	"		3 44 0	-4 8	Mar. 13	7:15	8:25	70	" 12-12	"	7.1	"	"	4W 20	2			G	
129	Cl. 1145+5559	"	#48	11 44 30	+55 58.8		8:45	11:45	180	" 12-12	"	7.1	"	"	0E 20	2-1			G	Urs Maj. Cl. No. 1. sky 2
130	" "	"	#7	11 45 49	+56 2.2		12:15	14:45	150	" 12-12	"	7.3	"	"	2W 40	2-1			"	" " " "
131	NGC 2723	"		8 58 6	+3 23.4	Mar. 14	7:58	9:40	15±	" 12	"	7.2	"	"	0W 29	4-5				Clouded over, 15m± Thru Thick clds.
"	" " "	"		"	"	Mar. 15	7:11	7:41	30	" 12	"	"	"	"	1E 28	2-3			G	Total exp. 45m±.
132	NGC 2403	"		7 32 54	+65 39		8:22	10:22	120	" 12-12	"	7.3	"	"	2W 37	3-4			G	Nucl.

No.	Object	Mag.	Sp. Grating	R. A.	Dec.	Date 1953	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
																	Baked			
N 133	Anon	Neb.	63B	11 44 40	− 3 33.5	Mar. 15	10:38	11:00	22	He 15-15	S:Bl.	7.3	15	8° 0'	0E 57	4	IIa-0	H	G	Wild Triple System. Zwicky. Br. + middle of 3. E edge slit → N
134	Anon	"	"	11 44 31	− 3 34.2		11:10	12:48	98	"	"	"	"	"	0W 51	4	"		"	Spec. of 3.
135	NGC 5128	"	"	13 23 0	−42 41.0		13:03	13:53	50	"	"	"	"	"	0W 22	3	"		"	Near nuclear region. Em. north edge of abs. ban.
136	NGC 4762	"	"	12 50 56	+11 30.7		14:00	14:20	20	"	"	"	"	"	1W 19	4-5	"		"	
137	NGC 5713	"	"	14 38 8	− 0 3.5		14:31	14:51	20	"	"	"	"	"	0W 01	4-5	"		"	
138	Em. in NGC 2403	"	"	7 32 54	+65 42.8	Mar. 16	7:15	8:45	90	"	"	"	14	"	1W 03	3	"		"	II = center, IIA = edge of window. Em. No. II + IIA.
139	Cl. 1153+2341	"	#4 1A	11 53 21	+23 41.0		9:03	16:03	420	"	"	"	15	8° 30'	4W 01	3-2	"		"	Sky 30 Neb. No. 1 + 1A.
140	NGC 2613	"	"	8 31 33	−22 48.3	Apr. 9	8:11	9:11	60	"	"	7.4	13	8° 0'	2W 04	1-2	"	H	"	
141	NGC 4105	"	"	12 4 25	−29 29.3		9:24	10:24	60	"	"	7.2	14	"	0E 15	<1-1	"		"	
142	NGC 4106	"	"	12 4 33	−29 29.8		10:41	11:21	40	"	"	7.2	"	"	0W 43	<1	"		"	
143	NGC 5128	"	"	13 22 54	−42 44.8		11:37	12:37	60	"	"	"	"	"	0W 48	<1	"		"	High wind.
144	NGC 5457	"	"	14 1 45	+54 33.0		13:03	14:03	60	"	"	"	12	"	1W 23	<1	"		"	" " M 10.
145	L 886 − Anon. Neb. near	16.0	"	6 [illegible]	− 6 [illegible]	Apr. 11	7:50	[illegible]:50	4'C	"	"	7.1	10	"	3W 04	2	"		"	Sky 30 Not many between of class Mar. no. 2 members?
146	Cl. 1448+2618	Neb.	No. 1-2	14 48 0	+26 23.2		9:46	16:16	390	He 3-3	"	"	14	8° 45'	3W 02	2	"		"	
147	Cl. 1309-0105	"	"	13 9 18	− 1 4.3	Apr. 12	8:04	13:20	316	7-7	"	7.25	"	8° 30'	1W 50	2-5	"		N.G.	Plate shows Sky Hd. lines. N.G.
"	"	"	"	"	"	Apr. 13	7:30	12:30	300	7-7	"	"	"	"	1W 05	1-2	"		"	"
148	Cl. 1513+0433	"	No. 1	15 13 9	+4 33.3		13:50	16:00	130	12-12	"	"	15	8° 0'	2W 28	3-5	"		G	
149	Cl. 1309-0105	"	No. 1-2-1A	13 9 18	− 1 4.3	Apr. 14	7:40	15:40	480	12-12	"	"	"	8° 30'	4W 16	2-4	"		"	Sky
150	NGC 4273	"	63B	12 17 24	+ 5 35.7	May 7	8:58	9:58	60	15-15	"	"	13	8° 0'	0W 56	<1	"	H	"	Sky
151	NGC 5633	"	"	14 25 36	+46 20.2		10:24	11:14	50	20-20	"	"	"	"	0W 05	<1-1	"		"	
152	NGC 5866	"	"	15 5 6	+55 57		11:46	12:11	25	"	"	"	"	"	0W 22	<1-2	"		"	
153	NGC 6047	"	"	16 2 54	+17 50.7		12:29	13:35	66	"	"	"	"	"	0W 49	1-2	"		"	
154	NGC 6041	"	"	16 2 21	+17 50.2		13:50	15:40	110	"	"	"	"	"	2W 52	2	"		"	Some dawn spect.
155	NGC 4281	"	"	12 17 50	+ 5 38.4	May 8	8:08	8:38	30	"	"	"	"	"	0E 21	<1	"		"	
156	NGC 3686	"	"	11 25 9	+17 28.4		8:55	9:35	40	"	"	"	"	"	1W 30	<1	"		"	
157	NGC 4136	"	"	12 6 47	+30 10.5		9:46	11:25	99	"	"	"	"	"	2W 39	<1	"		"	
158	NGC 6044	"	"	16 2 55	+17 59.0		11:48	12:40	52	"	"	"	"	"	0W 06	<1	"		"	
159	NGC 6045	"	"	16 2 54	+17 52.3		12:49	13:34	45	"	"	"	"	"	0W 51	<1	"		80	
160	Anon	"	"	11 44 48	− 3 33.7	May 9	8:12	9:57	105	"	"	7.2	15	"	1W 36	2	"		G	Wild Triple System. N fol. of 3.
161	IC 3483	"	"	12 30 40	+11 35.8		10:08	12:00	112	"	"	"	14	"	2W 55	2-3	"		"	Zwicky.
162	Cl. 1534+3749	"	No. 1	15 34 26	+37 46.8		12:40	15:25	165	15-20	"	"	13	"	3W 15	3	"		240	Thick sky last hr. Sky.
163	Cl. 1025+1040	"	No. 1	10 25 13	+10 40.4	May 10	8:11	9:41	90	20-20	"	7.3	14	"	2W 43	3	"		G	Leo Cl.
164	Cl. 1534+3749	"	No. 4	15 34 26	+37 41.8		10:12	11:55	103	20	"	"	"	"	0E 11	3	"		240	Sky
165	"	"	"	"	"		12:00	15:25	205	20-20	"	"	"	"	3W 20	3	"		G	
166	NGC 3953	"	63B	11 51 12	+52 37	May 11	8:13	8:53	40	"	"	"	13	"	0W 34	1	"		"	
167	IC 3481	"	"	12 30 24	+11 41.2		9:11	9:46	30	"	"	"	14	"	0W 48	1-2	"		"	Zwicky

No.	Object	Mag.	Grading	R. A.	Dec.	Date 1953	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 168	Anon	Neb	63B	12 30 28	+11 40.3	May 11	9:56	11:26	90	He 20-20	S.Bl.	7.3	14	8° 0'	ZW 28	1	Baked IIa-0	H	G	No comp. Near I C 3481. Zwicky
169	NGC 4548	"	"	12 32 54	+14 46		11:43	12:13	30	"	"	"	"	"	3W 09	1	"		"	
170	NGC 4278	"	"	12 17 40	+29 38		12:23	12:48	25	"	"	"	13	"	4W 02	1	"		"	
171	NGC 5746	"	"	14 42 20	+2 10		13:01	13:31	30	"	"	"	"	"	ZW 21	1	"		"	
172	NGC 6658	"	"	18 31 54	+22 50		14:14	15:17	63	"	"	"	"	"	0W 17	1-2	"		"	
173	Anon Star	18±	"	20 56 40	+31 9.5	Aug. 3	9:15	11:15	180	He 15-15	"	"	12	7°50'	0W 01	3-5	103a-0	H	"	Sky 32. Taken for Neb. No. 9
174	NGC 7501	Neb.	"	23 7 53	+7 20.1		12:43	13:58	75	"	"	"	"	"	0E 04	"	"		"	Zwicky Cl.
175	NGC 7499	"	"	23 7 43	+7 20.0		14:08	15:38	90	"	"	"	"	"	1W 34	"	"		"	" " , Some moon In Evans Cl.
176	Anon Star	17±	"	20 56 44	+31 16.0	Aug. 4	8:13	10:28	145	"	"	"	13	"	1E 11	3-4	"		"	Taken for Neb. No. 16. Sky
177	NGC 7331	Neb.	"	22 34 48	+34 10.0		11:20	11:35	15	"	"	"	11	"	1E 53	4-5	"		"	
178	Nova No. 4 in M31 Arp V No.	17±	"	0 39 15	+40 47.0		12:15	15:40	205	He 40-40-40	3"8	7.0	9	7°45'	0W 09	4-5	"		2h	Vis. 0.2 brighter than # N, prc Could have been 2 exp. ±.
179	NGC 6478	Neb.	"	17 47 28	+51 11.0	Aug. 5	9:11	10:27	76	He 15-15	S.Bl.	7.3	12	"	1W 51	3	"		G	Sky 34.
180	Lundmark Syst.	Cl.	"	23 59 20	-15 42.5		12:35	13:20	45	"	"	"	"	"	1E 27	3	"		"	Cl. prec. center.
? 181	" "	Em.	"	23 59 26	-15 41.8		13:42	15:15	93	"	"	"	"	"	0W 28	3	"		"	Em. N of #. Both on slit. Em. paired north of cente
182	NGC 7331	Neb.	64B	22 35 3	+34 11	Aug. 28	8:31	10:16	105	He 60+60	"	7.0	9	15°15'	1E 39	1	" Baked IIa-0	H	Moon	
183	NGC 6643	"	63B	18 21 12	+74 31.6	Aug. 29	7:47	8:37	50	He 20-20	"	7.3	12	7°45'	1W 01	<1			G	
184	NGC 6824	"	"	19 42 36	+55 59		8:47	9:17	30	"	"	"	"	"	0W 20	<1	"		"	
185	NGC 6574	"	"	18 4 30	+14 59	Aug. 31	7:38	8:13	35	"	"	"	"	"	0W 56	1-2	"		"	
186	NGC 6127	"	"	16 36 12	+? 43		8:30	9:15	45	"	"	"	"	"	0E 22	1-2	"		"	
187	NGC 6744	"	"	19 35 54	+6 49		9:36	10:21	45	"	"	"	"	"	0W 38	1	"		"	
188	Lundmark Syst.	Cl.	"	23 59 20	-15 42.5		10:27	11:27	60	"	"	"	"	"	1E 29	1	"		F	Cl. prec. center.
189	Radio Cass		(3rd added)	23 21 17	+58 32.1	Sept. 14	9:18	12:20	182	Ne 1-1	"	"	"	18°15'	0W 48	3-1	103aE	Mi		Fil #8 p.a. 159°8
190	"		"	"	"		13:19	16:19	180	"	"	"	"	"	4W 47	1-2	"			Fil #6 p.a. 101°3
191	"		"	"	"	Sept. 15	10:05	16:08	363	"	"	"	"	"	4W 39	2-5	"			Fil #5 p.a. 73°3
192	NGC 7027	Plan	"	21 5 14	+42 2.3	Oct 13	7:08	7:09	1m	"	"	"	"	"	0E 15	2	"			
193	Radio Cas		"	23 21 17	+58 32.1		8:55	15:25	390	"	"	"	15	"	5W 47	2-5	"			Fil #5 p.a. 73°3
194	"		"	"	"	Oct 14	9:45	14:45	300	"	"	"	"	"	5W 11	2-4	"			Fil #1 p.a. 79°2
195	"		"	"	"	Oct 15	10:55	14:55	180	"	"	"	"	"	5W 25	2-4	"			Fil #11 p.a. 112°5
196	NGC 1952		"	5 31 32	+22 0		15:40	16:40	60	"	"	"	"	"	1W 0	3-4	"			Spec edge p.a. 90°
197	"		63B	"	"	Oct 17	15:55	16:25	30	"	"	"	12	8°15'	0W 54	5	IIa 0 Baked			p.a. 30° ± through double * at center. Spec comparison window marked by star spectra
198	Lundmark Syst.	Cl.	"	23 59 28.5	-15 42.3	Nov. 6	6:52	11:55	303	He 30-30-30-30	3"8	7.1	9	7°45'	3W 15	2	103a-0	H	G	6'.2 S + 2'.5 E of IC 1505
199	Anon Zwicky	Neb	"	23 39 29	-3 55.1	Nov. 7	6:33	8:03	90	15-15	S.Bl.	7.4	12	"	0E 13	<1	IIa-0 Baked		F	Base 217°.5.
200	NGC 7814	"	"	0 0 42	+15 51		8:16	8:56	40	"	"	"	"	"	0W 17	<1	"		F	
201	NGC 185	Cl.	"	0 36 36	+48 4.5		9:24	11:02	98	"	"	"	"	"	1W 47	<1	"		=	
202	NGC 1277	Neb	"	3 16 53	+41 24.2		11:26	12:36	70	"	"	"	"	"	0W 40	<1	"		G	Perf. Cl.
203	van Maanen #2	12.9	"	0 46 48	+5 10.6	Nov. 8	6:30	7:15	45	45-45	3"5	7.1	9	"	2E 06	3	103a-0		± 6m	Wide. #16.5 is ± 4" N and 16" E of vM 2.

No.	Object	Mag.	Sp. G	R. A.	Dec.	Date 1953	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 204	Cl. 0025+2223	Neb.	63B	0 25 10	+22 22.3	Nov. 8	7:42	9:15	93	He 7-20	SBl.	7.4	13	7°45'	0W 15	2-1	103a-0	H	±4h	Neb. #5, very blue; Stopped acct. wind. Sky 27.
205	van Maanen #2	12.9	"	0 46 48	+ 5 10.6	Nov. 10	6:10	6:22	12	30-30	3"S	7.1	8	"	1E 50	2	IIa-0		G	Widened across window #1.
206	NGC 214	Neb	"	0 39 12 1954	+25 15		6:38	7:25	47	15-15	S.Bl.	7.4	13	"	0E 39	3-4	103a-0		"	
207	Anon Star	±18.5	"	0 41 5	+41 10.0		7:50	9:20	90	15-15	"	"	11	"	0W 12	3	"		"	
208	Cl. 0025+2223	Neb	0 3rd [illegible] red	0 25 22	+22 26.7		10:03	13:00	177	15-15	"	"	13	"	4W 08	3-4	"		"	Neb. #9. Sky 28.
209	IC 443		3rd [illegible] red	6 14 45	+23 33.7	Nov. 11	14:01	17:01	180	Ne 1-1	"	"	15	18°30'	2W 23	3-5	103a E	Mi		p.a 90°. 1'N 33'E of nebn
210	Radio Cas		63B	23 21 12	+58 32.1	Nov. 12	9:37	12:37	180	He 10-10	"	"	15	8°15'	5W 37	3-4	103a J			Fil #5 p.a 73°3
211	NGC 1952		3rd [illegible] red	5 31 32	+22 0		14:08	16:08	120	Ne 1-1	"	"	12	18°30'	2W 18	4-5	103a E			p.a. 42°5 (through center) at S prec edge.
212	"		"	"	"	Nov 15	13:21	15:21	120	"	"	"	"	18°15'	1W 44	1-2				p.a. 30°, slit radial at N foll. edge
213	IC 443		"	6 14 45	+23 33.7		16:03	17:03	60	"	"	"	"	"	2W 43	1				p.a. 26° slit radial at N for edge.
214	Radio Cas		"	23 21 12	+58 32.1	Dec 9	7:26	8:41	75	"	"	"	15	"	2W 49	<1-2				Fil. #9 p.a 169°2
215	NGC 1952		"	5 31 32	+22 0		10:40	12:40	120	"	"	"	"	"	0W 48	1-3				p.a. 108° slit radial at S foll edge
216	"		"	"	"		13:33	15:33	120	"	"	"	"	"	3W 30	<1-2				p.a. 122° slit radial at N prec edge
217	IC 443		"	6 14 45	+23 33.7		16:23	17:23	60	"	"	"	"	"	4W 40	2				p.a. 90° 5'S 15'E of nebn
218	NGC 1952		"	5 31 32	+22 0	Dec 10 1954	8:40	10:40	120	"	"	"	"	"	1E 08	<1-[illegible]				p.a. 79°5 slit radial at N foll edge
219	Cl. 0025+2223	Neb. #8	63B	0 25 00.7	+22 22.5	Jan. 4	6:39	9:39	180	He 12-12	S.Bl.	7.4	12	7°45'	4W 25	3-1	103a-0	H	P	Sky 27. Violet end out of focus.
220	Cl. 0855+03 21	Neb. #11	"	8 55 33	+ 3 21.2		13:23	16:58	215	"	"	"	13	"	3W 17	3-1	"		G	Hyd. Cl. Field neb. Not mem Exp. Abt.
221	Cl. 0138+1840	Neb. #5	"	1 38 24	+18 42.2	Jan. 5	6:54	9:50	176	"	"	"	"	"	3W 15	3-2	"		P	Thick last 9 m. Cld. over.
222	Fornax Syst.	Ft. Cl.	"	2 38 15	-34 42.4	Jan. 7	6:20 7:57	7:15 8:27	85	He 40-40	3"S	7.0	9	7°45'	1W 10	1-<1	"		G	Fornax Syst. Fogged over. Ft. Cl.
223	NGC 1049	Br. Cl.	"	2 37 55	-34 25.6	Jan. 9	7:05	8:05	60	"	"	"	"	"	0W 58	1-<1	"		G	Br. Cl. in Fornax Syst.
224	NGC 1415	Neb.	"	3 38 45	-22 43		8:19	9:25	71	15-15	S.Bl.	7.4	13	"	1W 21	1-2	"		G	Moonlight.
225	Cl. 0855+0321	Neb. #1, #2	"	8 55 26	+ 3 22.5		10:25	16:45	380	10-10-10	"	"	"	"	3W 21	2	"		G	Hydra Cl. Base 200°.
226	"	Neb. #5	"	8 [illegible]	+ 3 18.8	Jan. 10	11:46	16:46	300	8-8-8	"	"	"	"	3W 26	3-2	"		G	Hydra Cl.
227	IC 342	Nucl.	"	3 42 5	+67 56.8	Jan. 26	6:44	7:44	60	40-40	3"S	7.0	9	"	0W 39	5-4	"		15m	Nucl. of IC 342
228	NGC 2403	IIA	"	7 32 22	+65 40.6		10:06	12:06	120	12-16	S.Bl.	7.4	12	"	1W 16	4-3	"		G	Thick sky. Cld. over.
229	NGC 681	Neb.	"	1 46 42	-10 40	Jan. 27	6:45	7:30	45	12-12	"	"	13	"	2W 25	2-3	"		G	
230	IC 342	Neb.	"	3 42 5	+67 56.8		7:46	8:01	15	40-40	3"S	7.0	9	"	1W 01	3	"		"	Nucl. of IC 342. Cld. over @ Mic.
231	NGC 2403	#20	"	7 34 0	+65 37		8:36	12:06	210	10-10-10	S.Bl.	7.4	13	"	1W 15	3	"		"	Em. #20. Sky 27.
232	NGC 628	Neb.	"	1 34 0	+15 32	Jan. 30	6:34	7:34	60	15-15	"	"	"	"	2W 55	1	"		45m	Nucl.
233	NGC 2403	#16	"	7 33 10	+65 39.1		8:08	11:38	210	10-10	"	"	"	"	1W 00	1-<1	"		G	Em. #16. High wind. Sky 31.
234	" "	#14	"	7 32 54	+65 39.1	Jan. 31	6:36	8:06	90	15-15	"	"	"	"	2E 29	<1	"		G	Em. #14. Windy. Sky 32.
235	Anon. Near 2403	Neb.	"	7 31 46	+65 44.2		8:34	11:34	180	"	"	"	"	"	1W 02	<1	"		P	[illegible] #. Closed acct. wind.
236	IC 342	Nucl.	"	3 42 3	+67 56.9	Feb. 23	7:01	7:46	45	60-60	3"S	7.0	9	"	2W 31	<1-1	IIa-0		G	
237	NGC 2403	#2	"	7 30 54	+65 44.1		8:29	10:29	120	30-30	S.Bl.	7.4	12	"	1W 27	<1-2	103a-0		"	Em. #2. Sky 30
238	"	#5	"	7 31 40	+65 42.7		10:48	11:30	42	"	"	"	"	"	2W 24	2	"		"	Em. #5. Stopped acct. wind.
239	NGC 1199	Neb.	"	3 1 23	-15 47	Feb. 24	6:58	7:28	30	22-27	"	"	"	"	3W 00	3-4	"		"	

No.	Object	Mag.	Spec. G	R. A.	Dec.	Date 1954	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 240	NGC 2403	#18	63B	7 33 19	+65 39.0	Feb. 24	8:09	10:39	150	He 23-23	S.Bl.	7.4	12	7°45'	1W 37	3	103a-0	H	G	Em. No. 18.
241	"	Neb.	"	7 32 14	+65 41.7		10:51	11:41	50	22-22	"	"	"	"	2W 41	2-3	"		"	Nucl.
242	"	"	"	"	"		11:48	12:38	50	"	"	"	"	"	3W 38	2	"		"	"
243	NGC 4762	"	"	12 50 30	+11 28.4		13:19	14:55	96	80-80-80	3"S	7.0	9	"	0W 37	3	"		"	Base 210°. Some moonlight.
244	NGC 1521	"	"	4 6 13	-21 9.5	Feb. 25	7:00	7:20	20	20-20	S.Bl.	7.0	12	"	1W 49	4	"		"	
245	NGC 1417	"	"	3 39 36	-4 48		7:32	7:47	15	20-20	"	7.0	"	"	2W 43	3	"		"	
246	NGC 2403	"	"	7 32 20	+65 41.7		8:02	9:02	60	"	"	"	"	"	0W 05	3	"		"	Nucl.
247	"	#19	"	7 33 20	+65 37.2		10:01	11:25	84	"	"	"	"	"	2W 28	3-2	"		"	Em. No. 19.
248	IC 3483	Neb.	"	12 30 40	+11 35.8		11:52	13:00	68	"	"	7.2	"	"	0E 54	3	"		"	Zwicky.
249	Anon	"	"	12 30 28	+11 40.3		13:16	13:56	40	"	"	"	"	"	0W 02	3	"		"	"
250	Cl. 1253+4422	Neb. #24+R9	"	12 54 2	+44 19.1	Mar. 31	13:15	16:00	165	5-5-5	"	7.3	14	8°20'	3W 58	5-4	"	H		Fog earlier. Sky 26.
"	"	"	"	"	"	Apr. 1	7:35	16:35	505	5-5-5	"	"	"	"	4W 01	3-4	"		G	Total exp. 11h 10m. Sky 28.
251	NGC 2716	Neb.	"	8 55 0	+3 17	Apr. 2	7:20	8:00	40	15-15	"	"	15	7°45'	0W 02	2-3	"		"	Sky 26.
252	Cl. 1448+2617	Neb. B6	"	14 47 51	+26 19.2		10:34	16:00	326	3-3-3	"	"	"	8°20'	2W 12	5-3	"			Exp. 386 min.
"	"	"	"	"	"	Apr. 3	8:28	9:28	60	10-10	"	"	"	"	4E 56	2	"		P	Prob. not member of cl. Clear sky. Exp. 15:30, Total exp. 6h 50m. Mag. 21?.
253	"	Neb. B1	"	14 41 47	+26 16.3		10:09	15:30	321	3-3-3	"	"	"	8°30'	1W 44	2-3	"			Total cds. most of mid.
"	"	"	"	"	"	Apr. 5	9:21	12:31	190	10-10	"	"	"	"	1E 06	<1	"		P	High wind. Sky 28.
254	Cl. 1448+2617	Neb. B4	"	14 47 44	+26 17.2	May 1	9:00	15:30	390	He 2-2 Nc 3-3	"	7.3	15	9°0'	3W 34	1-2	103a-J	H		Base = 90°. Sky 30.
"	"	"	"	"	"	May 2	8:08	15:30	442	"	"	"	"	"	3W 39	1-3	"			" "
"	"	"	"	"	"	May 3	8:07	15:30	443	"	"	"	"	"	3W 43	1-3	"			" 28.
"	"	"	"	"	"	May 4	8:00	11:15	195	"	"	"	"	"	0E 28	3-1	"		P	Total exp. 24h 30m. " 30.
255	Supernova in NGC 5668	14±	"	14 31 29	+4 38.8		12:06	12:07	1	He 60-60	3"S	7.0	9	7°45'	0W 54	2	IIa-0		G	Nova is 32" south of nucl. Found by Wild.
256	NGC 5668	Neb	"	14 31 26	+4 39.3		12:09	12:11	2	He 20-20	S.Bl.	"	15	"	2W 13	2	103a-0		F	Nucl.
257	Supernova in NGC 5668	14±	"	14 31 29	+4 38.8		12:25	13:30	65	He 90-90	S.Bl.	"	9	"	2W 42	2	IIIa-0		G	Widened.
258	Supernova in NGC 4214	13±	"	12 13 29	+36 35.0	June 24	13:54	14:09	15	He 60-60	3"S	"	"	"	3W 54	<1	"	Mi	G	Through clouds! Widened
259	"	"	"	"	"	June 25	8:44	9:44	60	"	"	"	"	"	3W 26	<1	"		G	" " "
260	Radio Cyg A	(18)Neb	64B	19 57 45	+40 35 44	June 27	8:29	9:14	45	He 15-15	S.Bl.	7.1	15	14°30'	1W 37	3-4	" Hdd		G	p.a. 115°
261	"	"	"	"	"	June 28	9:28	14:58	330	Nc 15-15	"	7.3	"	14°20'	1W 55	4-6	103aF(2)		G	" W#3 filter.
262	"	"	"	"	"	July 26	9:22	14:52	330	Nc 1-1 A+2835 20-20	"	"	"	19°0'	3W 8	2-5	"		F	" some "clouds"
263	"	"	"	"	"	July 27	9:04	14:34	330	"	"	"	"	"	4W 5	3-4	"		G	" W#3 filter
264	Supernova in NGC 4214	14±	63B	12 13 21	+36°35'	July 28	8:32	15:32	420	He 30-30	3"S	7.0	9	7°45'	5W 2	2	Ia 066d		G	Wide
265	Radio Cyg A		64B	19 57 45	+40°35'44"	"	8:07	8:37	30	He 15-15	S.Bl.	7.1	15	14°30'	4W 12	2-4	"		G	p.a. 115°
266	NGC 7335	Neb	63B	22 35 3	+34 11	Sept. 1	9:00	15:30	390	He 15-15	S.Bl.	7.3	12	7°45'	1E 39	3	103a-0	H	F	Thick sky.
267	NGC 6015	"	"	15 50 42	+62 28	Sept. 2	9:19	10:00	41	He 15-15	"	7.4	13	7°30'	4W 10	4-2	"		N.G.	Sweet is moonlight.
268	Anon No. 2	"	"	16 48 15	+45 33		7:29	9:00	91	"	"	"	"	"	4W 55	3-2	"		G	3rd brighter of 3.
269	Cl. 2322+425	Neb. 8	"	23 22 14	+42 26		9:12	10:42	90	"	"	"	"	"	1W 07	3-4	"		G	Zwicky pair.
							11:11	13:30	139											

No.	Object	Mag.	Sp. Gr.	R. A.	Dec.	Date 1954	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 270	Cl. 2322+1425	Neb.#7	63B	23 22 26	+14 25.1	Sept. 2	13:45	16:00	135	He 15--15	S.Bl.	7.4	13	7°30'	3 W 38	4-2	103a-O	H	G	
271	Cl. 0010+0912	Neb#2	"	0 10 34	+9 17.1	Sept. 3	10:24	14:15	231	15	"	"	"	8° 0'	1W 10	2-5	"			
"	"	"	"	"	"	Sept. 4	10:12	12:44	152	15	"	"	"	"	0E 17	4-7	"		G	Total 6h 24m.
272	Cl. 0122+3305	Neb.#7	"	1 21 21	+33 1.5		13:08	13:50	42	15-15	"	"	"	7°45'	0E 23	5	"		G	
273	"	Neb.#5	"	1 20 52	+33 15		13:58	14:30	32	"	"	"	"	"	0W 18	5	"		G	
274	"	Neb.#4	"	1 20 36	+33 14.2		14:45	15:21	36	"	"	"	"	"	1W 10	5-3	"		G	
275	DQ Herc	14.2	"	18 06 13	+45 51	Sept. 5	7:30	7:42	12	60-60	3"S	7.0	9	7°40	0W 46	2-3	IIa-O		G	Nova Herc (1934)
276	NGC 128	Neb.	"	0 27 26	+2 38.9		11:13	11:43	30	15-15	S.Bl.	7.4	12	"	1E 32	3	103a-O		"	Slit N-S par at.
277	DQ Herc	14.2	"	18 6 13	+45 51		12:00	12:15	15	60-60	3"S	7.0	9	"	5W 21	1-2	IIa-O		"	Nova Herc (1934)
278	Anon	Neb.#3	"	20 59 30	+15 59.5		12:38	14:40	122	15-15	S.Bl.	7.4	13	"	4W 52	3-4	103a-O		"	Near NGC 7006 = ⊕
279	NGC 1003	Neb	"	2 36 6	+40 40		14:57	15:57	60	"	"	"	"	"	0W 34	4-7	"		"	Slit E-W
280	(Wild) Nova	10.5	"	17 46 0	-17 51	Sept. 6	7:48	7:56	8	60-60	3"S	7.0	9	"	1W 24	4	IIa-O		4m	Widened. ~~Near NGC 7006 = ⊕~~
281	Anon	Neb.#1	"	20 59 46	+15 58		12:04	14:04	120	15-15	S.Bl.	7.4	13	"	4W 20	4-2	103a-O		G	Near NGC 7006 = ⊕ 38"W-28"N of NGC 128.
282	NGC 127	Neb.	"	0 26 51	+2 39.4		14:22	15:02	40	"	"	"	"	"	1W 51	3	"		G	OUT of FOCUS.
283	NGC 130	"	"	0 26 57	+2 39.3		15:12	15:42	30	"	"	"	"	"	2W 28	3	"		D.K.	50"E-1'N of NGC 127
284	Wild (Nova)	10.5	"	17 46 1	-17 51	Sept. 7	7:20	7:26	6	60-60	3"S	7.0	8	"	1W 00	3	IIa-O		G	Widened. star 16 sec W
285	Anon Star ±	13.5	"	18 5 54	+45 49.5		8:17	8:42	25	"	"	"	"	"	1W 56	3-5	"		"	" widened 2'.7S of DQ Her
286	DQ Herc	14.2	"	18 6 10	+45 52.2		10:38	11:03	25	"	"	"	"	"	4W 17	3-5	"		"	Nova Herc (1934).
287	NGC 127	Neb.	"	0 26 51	+2 39.5		13:21	14:01	40	15-15	S.Bl.	7.4	13	"	0W 54	3-4	103a-O		"	38"W-28"N of NGC 128.
288	Anon	"	"	0 26 20	+2 44.3		14:17	15:25	68	"	"	"	"	"	2W 20	3-2	"		"	9.4W-5.5N of NGC 128
289	NGC 125	"	"	0 26 32	+2 37.3		15:36	16:01	25	"	"	"	"	"	2W 55	2	"		"	6'.5W-1'.5S of NGC 128
290	DQ Herc	14.2	"	18 6 10	+45 51	Sept. 8	7:29	7:54	25	60-60	3"S	7.0	9	"	1W 12	5	IIa-O		"	Nova Herc (1934) Widened
291	Radio Cas		#1	23 21 12	+58 32.1	Sept 26	8:23	15:53	450	No 1 - 1	S.Bl.	7.2	15	18°30'	5W 07	2-4	103a E	Mi		p.a. 87°.5 thru Baade c and
292	"		"	"	"	Sept. 27	7:40	15:40	480	"	"	"	"	"	4W 58	1-3	"			p.a. 133°.2 " " a and
293	"		"	"	"	Sept. 28	7:29	15:29	480	"	"	"	"	"	4W 52	1-2	"			p.a. 94°.9 " " f
294	"		"	"	"	Sept. 29	7:38	15:33	480	"	"	"	"	"	4W 56	1	"			fil #7 p.a. 90°
295	Baade V19	±17	63B	1 2 4 (1950)	+1 47.4	Oct. 25	7:22	8:22	60	He 20-20 Ne 60-60 He 6	"	7.4	14	9°10'	2E 11	<1-1	Baked IIa-J	H		4's. prec. center of IC 16
296	Cl. 0024+1654	Neb.#2	"	0 24 3	+16 53.1		10:24	12:35	131	Ne 9-9	"	"	"	"	2W 41	2-<1	"			R2 is 22 sec. W Sky 4
"	"	"	"	"	"	Oct. 26	6:32	13:47	435	"	"	"	"	"	3W 55	1-<1	"			nov. 5.5 N of Ass 526 = H1 2292 " 3
"	"	"	"	"	"	Oct. 27	6:25	14:25	480	"	"	"	"	"	4W 39	1-3-2	"			Sky 3
"	"	"	"	"	"	Oct. 28	6:20	14:30	490	"	"	"	"	"	4W 50	1-3-1	"			" 3
"	"	"	"	"	"	Oct. 29	6:30	14:30	480	"	"	"	"	"	4W 52	1-3-1	"			" 4
"	"	"	"	"	"	Oct. 30	7:35	14:30	415	"	"	"	"	"	4W 56	5-2	"			Total exp. 4h 31m " 3
297	NGC 1275	Ne 6.	"	3 16 32	+41 20	Nov. 27	10:54	15:00	246	He 10-10	"	7.3	15	8°00	4W 22	2-4	IIa O	Mi		p.a. 93°.1 N of center thro' emission patches
298	IVGC 2623	"	"	8 35 36	+25 55		15:43	16:43	60	"	"	"	"	"	0W 48	:3	Baked "			through bright condensati
299	Radio Cass		#1	23 21 22	+58 33	Nov 28	7:15	11:45	270	Ne 1 - 1	"	"	"	18°30'	5W 07	2-<1	103a F			p.a. 64°.9 thru
300	NGC 224			0 41 16	+41 3	Dec 29	7:30	9:30	120	He 20-20	3"S	7.0	9	8°00	3W 35	1-2	IIaO baked		50m	p.a. 128° 10'N of tell nucle

No.	Object	Mag.	Sp.	R. A.	Dec.	Date 1954	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N301	NGC 1275			3 16 49	+41 21	Dec 29	9:54	12:54	180	He 10 - 10	1.4S	7.0	15	8°00	4W23	2-3	Fa-O (baked)	Mi		p.a. 93°. 5"S of N297
N302	NGC 2623			8 35 36	+25 55		13:54	16:54	180	—	"	7.3	"	"	3W15	1-2				through S condensation
N303	NGC 224			0 41 16	+41° 3	Dec 30	6:33	7:23	50	He 20 - 20	3"S	7.0	9	"	1W32	4				p.a. 128°; 10" N foll. nucleus
N304	NGC 221			0 41 14	+40° 39		7:55	8:45	50	"	"	"	"	"	2W54	3				p.a. 60°; 5"S foll. nucleus
N305	NGC 1275			3 16 49	+41 21		8:57	9:16	15	He 10 - 10	1.4S	7.3	15	"	0W47	2				p.a. 93° nucleus; Last 3m to clouds.
N306	"			"	"	1955	10:25	11:35	70	"	"	"	"	"	3W07	1-3				p.a. 93° through star N of nucleus; thin clouds at end
307	"			"	"	Feb. 22	7:04	8:34	90	"	"	"	"	"	3W40	<1-1				p.a. 93°. 16"S of N297
308	NGC 2623			8 35 36	+25 55		9:12	12:12	180	"	"	"	"	"	2W00	1				through S condensation
309	NGC 4038/9			11 59 35	-18 38		12:43	13:43	60	"	"	"	"	"	0W08	1				p.a. 0° through bright cond. in NGC 4039
310	anon. gal.			14 10 00	+52° 34'		14:39	17:29	150	"	"	"	"	"	1W24	1-<1				
311	NGC 1275			3 16 49	+41° 21	Feb 26	7:05	9:05	120	"	"	"	"	"	4W15	1-<1				p.a 3°. 4" prec. nucleus
312	NGC 3448	Neb	63B	10 52 0	+54 32	Apr. 12	7:55	8:20	25	He 10-15	S.Sl.	7.3	12	7°40'	0E57	3-4	103a-O	H	G	
313	3346	Neb.		10 41 16	+15 8		9:13	11:00	107						1W55	3			F	3/4 for corr. exp.
314	Cl. 1448+2621	2+3	98B	14 47 30	+26 21.5	Apr. 13	8:24	12:10	226	He 2	1".4	7.3	14	4°50'	0E57	1-3	103a-D	H		Base 90°, Slit E-W. Sky 3
"	"	"	"	"	"	Apr. 14	8:30	12:45	255	Ne 2					0E18	1-3				" 2
"	"	"	"	"	"	Apr. 15	8:03	13:23	320	He 2					0W11	2-5				" 27
"	"	"	"	"	"	Apr. 19	8:00	15:35	455	He 2					2W53	3-6				" 27
"	"	"	"	"	"	Apr. 20	8:33	15:33	420	Ne 4					2W55	2-4				Total exp. 28 hr. " 27
315	M42 VI-55	15	63B	[illegible]	[illegible]	July 26	9:51	10:31	40	He 15-15	3"S	7.0	9	7°35'	1w46	2-3	103a-O	Mi	G	Δ, w
316	M42 II 40	15.6		"	"	"	11:30	13:10	100	"	"	"	"	"	4w25	2	"	-	G	"
317	M 2 I-59	15.0		21 31 05	-0° 57'	"	14:38	15:38	60	"	"	"	"	"	2w31	2	"	"	G	
318	M42 XII 9&10	15.1		11 15 37	+43° 11'	July 21	8:30	10:18	118	He 30-30	"	"	"	"	1w37	2-3	Da-O bnd	"	S	* 10 closer to comp.
319	M42 V 36	15.4		"	"	"	11:38	13:20	102	"	"	"	"	"	4w39	3	"	"	G	Δ, w
320	M2 II 94	15.1		21 31 05	-0° 57'	"	14:10	15:40	90	"	"	"	"	"	2w46	2	"	"	G	
321	M42 VI-55	15.0	64B	17 15 37	+43° 11'	Aug 10	8:30	10:30	120	He 60-60	"	7.0	9	14°45'	2W43	2-3	Da-O	"		
322	anon. gal		98B	16 48 56	+5° 04'.1	Aug 13	8:14	11:18	184	He 5-5	1".4	7.3	15	4°15'	5W09	4	103aD	Mi		
323	NGC 7293	plan		22 27 18	-21° 4'.0		11:57	13:27	90	Ne 1 1					0W41	3-4				5"S of nucleus
324	NGC 6720	"	#1	18 48 12	+32° 58'.2	Aug 14	8:18	14:00	342	Ne 1 1				18°30'	4W52	4-5	103a-F(3)			Ht envelope. 50° N of nucl.
325	Radio Cas		"	23 21 26	+58° 33'.7	Aug 15	10:40	15:45	305	"				18°15'	1W33	4-5				p.a. 12°. Baade p.a. 90° #4
326	Cl. 2322+1424	No. 14	98B	23 21 51	+14 26.0	Sept. 9	8:17	9:02	45	He 20+Ne 5	1".4	7.3	15	4°20'	2E53	2	103aD	H	F	50"E, 211"N of NGC 7649.
327	" "	No. 10	"	23 21 51	+14 23.0		9:28	10:28	60	" "	"	"	"	"	1E25	2	"		G	42-E, 39"N of " " .
328	Cl. 0024+1654	N2+3	"	0 24 0	+16 53.2	Sept. 10	8:30	12:30	240	He 1 Ne 0	"	"	"	4°40'	0E24	2-4	"	EMI 4949502		Sky 4
"	" " "	"	"	"	"	Sept. 11	8:25	13:45	320	" 1 " 1	"	"	"	"	0W56	1-3	"			" 5
"	" " "	"	"	"	"	Sept. 12	8:18	15:00	402	" 1 " 1	"	"	"	"	2W11	1-5	"			" 4
"	" " "	"	"	"	"	Sept. 13	8:12	9:52	100	" 0 " 0	"	"	"	"	2E50	2-3	"			Thick sky. " 6
"	" " "	"	"	"	"	Sept. 14	7:58	16:08	490	" 1 " 0	"	"	"	"	3W27	2	"			" 5
"	" " "	"	"	"	"	Sept. 15	8:00	12:08	248	" 4 " 3	"	"	"	"	0E26	1	"			Total 30 hr. ± " 4

No.	Object	Mag.	Spectrum	R. A.	Dec.	Date 1955	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 329	Cl. 0024+1654	N4	98B	0 24 0	+16 54.8	Sept. 15	13:35	16:05	150	He2 Ne1	1.4	7.3	15	4°40'	3W32	1-2	103aD	H		Sky 42
"	"	"	"	"	"	Sept. 16	7:53	16:00	487	" 3 " 0	"	"	"	"	3W32	1-3	"			" 58
"	"	"	"	"	"	Sept. 17	8:00	16:00	480	" 0 " 2	"	"	"	"	3W36	<1-2	"			" 40
330	Radio Cas		#1	23 21 26	+58 33.7	Oct 10	7:17	13:47	390	Ne 1 1	"	"	17	18°15"	3W56	1-3	103aF(3)	Mi		p.a. 59.5 Beade 15; 16.
331	"		"	"	"	Oct 11	7:12	14:42	450	"	"	"	"	"	4W55	3-1	"			p.a. 357.6 Beade 18; 20
332	"		"	"	"	Oct 12	7:00	14:30	450	"	"	"	"	"	4W46	2-4	"			p.a 120.5
333	B Cas		"	0 23 25	+63° 54.5	Dec 10	6:54	11:54	300	"	"	"	8	"	5W01	1-<1	103aE			filament 42.5 W, 2' N of BD 63° 47.
334	NGC 1275		63B	3 16 49	+41° 21'	Dec 12	6:35	7:35	60	He 10 10	"	"	15	7°45'	2E04	4	IIaO			p.a 93° 2.6 N of nucl.
335	"		"	"	"	"	7:57	8:57	60	"	"	"	"	"	0E41	5-6	Bkd.			p.a 93° through nucl.
336	"		"	"	"	"	9:24	12:24	180	"	"	"	"	"	2W45	4-6	"			p.a 93° 10" S of nucl.
337	NGC 1952		"	5 31 38	+22° 0	"	13:15	16:15	180	"	"	"	"	"	4W23	5-6	"			p.a 30° 1/4" W of cent * polarizel P = 70°
338	NGC 3115		"	10 3 0	−7° 30	"	16:47	17:17	30	"	"	"	"	"	0W53	4	"			p.a 45°
339	NGC 7023		63B	21 2 0	+67° 58'	1956 Jan 1	6:46	8:45	119	He 30+30	3"	7.0	9	7°45'	6m45	1<1	IIa-0b	Mw		slit E-W 6" N of cent *
340	HD 200775	7.2				Jan 2	6:50		5 trails	—	"	"	"	"	4m54	1	"	"		s
341	NGC 7023					Jan. 3	6:18	8:18	120	"	"	"	"	"	6m22	1-2	"	"		slit N-S 8' W of *
342	anon. gal		"	9 15 57	−11° 54.2	Jan 18	12:32	16:32	240	He 20-20 Ne 15-15	1.4	7.3	15	8°30'	3W20	1-3	103aJ	Mi		p.a. 123°
343A	Nova Puppis	14:	63B	8 9 52	−35 12.4	Mar. 17	7:45	8:15	30	He —	3"	7.0	9	8°15	0m00	2	IIaO	JLG BKM	✓	Several. No Comb.
"	"	"	"	"	"	"	8:17	8:32	15	—	"	"	"	"	0W17	2	5½m	"		
B	L 745-46A	12.8	"	7-38-04	-17°17.8	"	9:02	9:08	8	He 30	"	"	"	7°50	1W29	3	D19	"	20	Very wide 2/3 windo 1/3
"	"	"	"	"	"	"	9:08	9:41	33	"	"	"	"	"	2W00	3	W0 Calib	"	40	
344A	L 970-27	14:	"	11-05-38	-4 57.6	"	10:46	11:36	46	"	"	"	"	8°05	0W28	3		"	60	Upper window 1/2
B	L 970-30	12.8	"	11-05-32	-4 53.3	"	11:41	12:06	25	"	"	"	"	"	0W58	3		JLG	✓	Lower window All
345	Nova Puppis	14	"	8-09-32	-35 12 22	Mar. 18	8:15	8:57	42	He 30	"	"	"	8°15	0W47	1	IIaO W2 Calib	BKM	✓	W1 * Moon
346A	L 532-81	11.7	"	8-39-42	-32 47	"	9:36	9:52	15	"	"	"	"	7°50	1W12	1	D19 5M	JLG "	✓	W1C " Upper
B	L 825-14	12.7	"	10-31-27	-11 29	"	10:01	10:19	18	"	"	"	"	"	0E12	2		"	12	½ W1C " Lower
347	L 971-14	14.9	"	11-15-50	-3° 00 40	"	10:59	12:02	63	"	"	"	"	"	0W47	2		"	✓	W1 * NoD
348	Wolf 489	15.7	"	13-34-18	+3°58	"	14:31	16:34	123	"	"	"	"	"	3W00	1		"	✓	W1 * " "
349	Ross 627	13.8	"	11-21-42	+21°37	Mar. 19	15:06	16:37	91	He 45	"	"	"	7°50	5W20	2	IIaO W2	JLG	✓	W2 * " "
350	HZ 9	19.2	"	4-29-23	+17°38	Mar. 20	7:22	7:55	33	"	"	"	"	"	3W34	3	W1	JLG	—	W1 D Too strong
351	L 971-14		"	11-15-48	-2°58	"	8:43	9:41	58	He 30	"	"	"	"	2E22	4	"	"	—	W1 D Too strong
352	Ross 627	13.8	"	11-21-42	+2°39	"	14:19	16:39	140	He 60	"	"	"	7°30	5W27	2	"	"	✓	W2 NoD
353	Ross 808	14.6	"	15-59-36	+36°58	Mar. 21	15:49	16:45	56	He 60 W2	"	"	"	7°30	1W00	2	W3	JLG	✓	W1 NoD
N 354	M81 HII sf M1		#1	9-52-6	+69° 12'	Mar. 29	7:30	8:00	30m	He 4-4	3"	7.0	9	18°15'	1E08	2	103aF	Mw	60m	slit N-S
355	"		"	"	"	Mar. 30	7:34	8:34	30m	" 3-3	"	"	7	"	0E30	2	"	"	G	"
356	M81 HIIsf B1		"	9-52-39		"	9:07	10:47	100m	"	"	"	"	"	1W44	2	Baked	"	G	
357	NGC 3587	Planetary	98B	11 11 54 1950	+55 16	May 1	8:04	8:24	20	He 10 Ne 4	1.4	7.3	14	5°10'	0W08	3	IIa-D	H	G	
358	" "	"		"	"		8:35	8:55	20	"	"	"	"	4°20'	0W35	3	"		"	No comb. * at E end of slit.

No.	Object	Mag.	Setting	R. A. 1950	Dec.	Date 1956	EXPOSURE Beg.	EXPOSURE End	EXPOSURE Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
																	Baked			
N 359	NGC 3640	E2	98B	11 18 30	+3 31	May 1	9:12	9:27	15	He 10. Ne 2	1.4	7.3	14	4°20	1W00	4	IIa-D	H	G	Base 94°. R2+R3 on slit.
360	Cl. 1447+2620	R2+R3	"	14 47 22 (1950)	+26 20.3	May 6	11:45	14:45	180	He 1.	"	"	"	5°10'	3W12	1-3	"			Sky 62.
"	" "	"	"	"	"	May 7	8:06	15:36	450	He 1.	"	"	"	"	4W05	1-3	"			" 34.
"	" "	"	"	"	"	May 10	10:51	15:21	270	He 1 Ne 1	"	"	"	"	4W03	1-4	"			" 34. Fog at Times o
"	" "	"	"	"	"	May 11	9:04	11:15	120±	None	"	"	"	"	0W01	1-<1	"	H+Sandage		" 34. fog most of time
"	" "	"	"	"	"	May 13	10:20	12:14	114	"	"	"	"	"	1W06	1-<1	"	Sandage		" 42. Wind
"	" "	"	"	"	"	May 14	11:06	12:16	70	He 1. Ne 1	"	"	"	"	1W12	1-<1	"	H+S		" 56. S-E wind.
"	" "	"	"	"	"	May 15	11:45	15:00	195	None	"	"	"	"	4W00	2	"	Sandage		" 38.
"	" "	"	"	"	"	May 18	13:44	15:06	82	He 1. Ne 1	"	"	"	"	4W18	3-4	"	H		—— Cage temp. 55
"	" "	"	"	"	"	May 21	8:30	10:50	140	None	"	"	"	"	DE05	3-4	"	H		Sky 42. Clouded over.
"	" "	"	"	"	"	June 1	8:42	10:52	130	"	"	"	"	"	0W01	3-4	"			" 52. " "
"	" "	"	"	"	"	June 2	8:41	12:50	249	He 2	"	"	"	"	3W03	2-5	"			" 32.
"	" "	"	"	"	"	June 3	8:35	9:05	30	He 2 - Ne 2	"	"	"	"	0E37	1	"			" 40. Clouded over.
"	" "	"	"	"	"	June 7	14:19	14:30	10s	—	"	"	40	18°15'			103a F(3)	Mi		bright condensation screen 5m
									20s	—										
									40s	—										
									80s	—										
									160s	—					1E15	3	"			
361	NGC 7027		#1	21 5 23	+42 4.2										2W39	1-3	"			p. a. 4
															2W45	2-<1	"			Comp Beam points
															2W46	1-2	"			(g, h) and i. p. a. 10
362	Nova Oph (1604)			17 27 59	-21 27.3	June 8	9:42	14:43	30	He 1 - 1	"	"	15							
363	"			"	"	June 9	10 03	14:45	282	Ne 1	"	"	"							
						June 10	4:25	14 45	310	Ne 1	"	"	"							
364 a	M13 III 636	B 16.3	68B	16 39 50	+36° 28'	June 13	10:35	14:20	225m	He 20-20	3	7.0	9	7°45'	3m24	1-2	IIa-0 bkd	Mü	180	
b	" I 13	15.3	"	"	"	"	14:26	15:16	50m	"					4m20	1	"			
									1-3m	"	-	-	-	-	0m59	<1	"	-	6m	Δ2 1.5 neck fills
365	HD 123884	9.2	63B	14-8-8	-17° 47'	June 14	9:00			"	-	-	-	-	3m06	<1	"	-	[illegible]	Sp Op!
	+18° 2647 = [illegible]						9:37		3-15m	"										Sp BOV
366		11.7		12-39-39	+17° 47'	"									5E04	<1	"	-	"	Unfamiliar!! sky
367	HD 206183	8.1		21-36-52	+56° 45'	"	10:44													
368 a	M13 III 639	17.0	64B	16-39-57	+36° 35'	"	12:05	14:47	162m	He 10-10	S.B	7.3	14	15°25'	3m55	1-<1	"	-	G	
b	II 21	15.8					14:51	15:26	35m		-	-	-	-	4m35	1	"	-	60m	
									10m, 19m, 36m	He 60	3	7.0	7	16°0'	3m02	1-2	IIa-0	✓	39m	Δ2
369	+18° 2647	11.7	"	12-39-39	+17° 47'	June 15	8:39	9:51	180m		1.4	7.3	14	15°55'	4m23.	2-2	bkd	"	G	Δ1c
370	M13 III 110	17.5	"	16-39-52	+36° 29'		12:10	15:10	32	He 60	3	7.0	9	7°50	1W08	3	"	346	✓	Δ2 Cal.
371	L 770-3	13.1	63B	16-15-05	-15°28	June 28	10:09	10:44	15	He 60	3	4	9	"	3W01	2	"	JLG	10	Δ1 Cal. W1
372	Hz 22	12.7	"	12-12-16	+36°55	June 29	8:22	8:37	30	"	"	4	9	"	3W40	2	"	"	25	Δ2 "
373	Hz 22	12.7	"	"	"	"	8:46	9:16	26	"	"	4	9	"	4W35	1	"	"	✓	Δ2 "
374	Hz 14	12.8	"	12-10-21	+34° 11	"	9:29	9:55	30	"	"	"	9	"	3W05	1	"	"	✓	Δ2
375	Feige 64 B [illegible]	12.9	"	14-26-18	+21° 20	"	10:15	10:45		He 45	"	"	11	"	0W22	1	"	"	20	Δ1 Same Moon "
	[illegible]	13.2	"	19-30-41	+[illegible]36	"	11:21	11:51	30	He 30+30	"	"	9	"	3W53.	1	"	"	✓	Δ2 Cal W2
						June 30	8:46	9:16	30		"	"	"	"	3W25	1	"	"		Δ1

No.	Object	Mag.	Grating	R. A. 1950	Dec. 1950	Date 1956	EXPOSURE Beg.	EXPOSURE End	EXPOSURE Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 359	NGC 3640	E2	98B	11 18 30	+3 31	May 1	9:12	9:27	15	He 10. Ne 2	1.4	7.3	14	4°20	1W00	4	Baked IIa-D	H	G	
N 360	Cl. 1447+2620	R2+R3	"	14 47 22	+26 20.3	May 6	11:45	14:45	180	He 1.	"	"	"	5°10'	3W12	1-3	"			Base 94°. R2+R3 on slit.
"	" " "	"	"	"	"	May 7	8:06	15:36	450	He 1.	"	"	"	"	4W05	1-3	"			Sky 62.
"	" " "	"	"	"	"	May 10	10:51	15:21	270	He 1 Ne 1	"	"	"	"	4W03	1-4	"			" 34.
"	" " "	"	"	"	"	May 11	9:04	11:15	170±	None	"	"	"	"	0W01	1-<1	"	H+Sandage		" 34. Fog at Time of; fog most of time
"	" " "	"	"	"	"	May 13	10:20	12:14	114	"	"	"	"	"	1W06	1-<1	"	Sandage		" 42. Wind v.
"	" " "	"	"	"	"	May 14	11:06	12:16	70	He 1. Ne 1	"	"	"	"	1W12	1-<1	"	H+S		" 56. S-E wind.
"	" " "	"	"	"	"	May 15	11:45	15:00	195	None	"	"	"	"	4W00	2	"	Sandage		" 38.
"	" " "	"	"	"	"	May 18	13:44	15:06	82	He 1. Ne 1	"	"	"	"	4W18	3-4	"	H		—— Cage temp. 55
"	" " "	"	"	"	"	May 21	8:30	10:50	140	None	"	"	"	"	0E05	3-4	"	H		Sky 42. Clouded over.
"	" " "	"	"	"	"	June 1	8:42	10:52	130	"	"	"	"	"	0W01	3-4	"			" 52. " "
"	" " "	"	"	"	"	June 2	8:41	12:50	249	He 2	"	"	"	"	3W03	2-5	"			" 32.
"	" " "	"	"	"	"	June 3	8:35	9:05	30	He 2 - Ne 2	"	"	"	"	0E37	1	"			" 40. Clouded over.
361	NGC 7027		#1	21 5 23	+42 4.2	June 7	14:19	14:30	10s	—	"	"	40	18°15'			103a-F(3)	M.		bright condensation screen 5m
									20s	—	"	"	"							
									40s	—	"	"	"							
									80s	—	"	"	"							
									160s	—	"	"	"		1E15	3	"			
362	Nova Oph (1604)			17 27 59	-21 27.3	June 8	9:42	14:43	30m	He 1 - 1	"	"	15		2W39	1-3	"			p.a. 43°.3
363	"			"	"	June 9	10:03	14:45	282	Ne 1	"	"	"		2W45	2-<1	"			through Baum points (g, h) and l. p.a. 103°.3
	"			"	"	June 10	9:25	14:45	310	Ne 1	"	"	"		2W49	1-2	"			
364 a	M13 III 636	B 16.3	68B	16 39 50	+36° 28'	June 13	10:35	14:20	225m	He 20-20	3	7.0	9	7°45'	3m24	1-2	IIa-O blkd	Mü	180	
b	" I 13	16.3	"	"	"	"	14:26	15:16	50m	"					4m20	1	"			
365	HD 123884	9.2	63B	14-8-8	-17° 47'	June 14	9:00		1-3m	"	"	"	"	"	0m53	<1	"	"	6m	Δ2 1."5 neut. filter
366	+18° 2647	11.7		12-39-39	+17° 47'	"	9:37		3-15m	"	"	"	"	"	3m06	<1	"	"	rej	sp. Op!
367	HD 206183	8.1		21-36-52	+56° 45'	"	10:44								5m04	<1	"	"		Sp BOV
368 a	M13 III 639	17.0	64B	16-39-57	+36° 35'	"	12:05	14:47	162m	He 10-10	5.B	7.3	14	15°25'	3m55	1-<1	"	"	G	Contaminated!! sky?
b	II 21	15.8					14:51	15:26	35m	"	"	"	"	"	4m35	1	"	"	60m	
369	+18° 2647	11.7	"	12-39-39	+17° 47'	June 15	8:39	9:51	10, 19, 39m	He 60	3	7.0	7	16°0'	3m02	1-2	IIa-O		39m	Δ2
370	M13 III 110	17.5	"	16-39-52	+36° 29'	"	12:10	15:10	180m		1.4	7.3	14	15°55'	4m23.	2-2	blkd	"	G	Δ1c
371	L 770-3	13.1	63B	16-15-05	-15°28	June 28	10:09	10:41	32	He 60	3	7.0	9	7°50	1w08	3	II	346	✓	Δ2 Cal.
372	HZ 22	12.7	"	12-12-16	+36°55	June 29	8:22	8:37	15	He 60	3	4	9	"	3w01	2	"	JEG	10	Δ1 Cal. W1
373	HZ 22	12.7	"	"	"	"	8:46	9:16	30	"	"	4	9	"	3w30	2	"	"	25	Δ2 "
374	HZ 19	12.8	"	12-10-21	+34° 11	"	9:29	9:55	26	"	"	4	9	"	3w35	1	"	"	✓	Δ2 "
375	Feige 64 B, FOS	12.9	"	14-26-18	+21° 20	"	10:15	10:45	30	"	"	"	9	"	3w05	1	"	"	✓	Δ2 "
376	AC +7° 8247	13.2	"	19-30-41	+7°36	"	11:21	11:51	30	He 45	"	"	11	"	3w42	1	9.11	"	20	Δ1 Some Moon "
377	HZ 22	12.7	"	12-12-16	+36°55	June 30	8:46	9:16	30	He 30+30	"	"	9	"	3w53.	1	"	"	✓	Δ2 Cal W2
378	HZ 29	13.9	"	12-32-24	+37°55	"	9:35	10:07	32	He 30	"	"	"	"	3w215	1	"	"		Δ1

No.	Object	Mag.	Trail Sq.	R. A. (1950)	Dec.	Date 1956	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N379	AC+70°8247	13.2	63B	19-00-41	+70°36	June 30	9:29	11:15	46m	He 30	3"	7.0	12	7°50	0E54	1	Baucch IIaO	JLG	✓	Δ2 w1
N380	L1573-31	14.4	63B	19-40-24	+37°24	"	11:54	12:24	30	He 30	"	"	10	"	0E26	<1	"	"	40	Δ1 w1 Brite Moon
381	HZ 22	12.7	"	12-12-16	+36°55	July 1	8:50	9:20	30	He 60	"	"	8	"	4W02	1	"	"	✓	Δ2 w2
382	HZ 29	13.9	"	12-32-24	+37°55	"	9:26	10:18	52	45	"	"	10	"	4W40	1	"	"	✓	Δ2 "
383	Ross 640	14.0	"	16-26-48	+36°51	"	10:32	11:32	60	45	"	"	10	"	2W02	2	"	"	✓	Δ2 "
384	L1068-14	13.0	"	19-23-30	+4°00	"	12:03	12:33	30	45	"	"	10	"	0W06	1	"	"	✓	Δ2 " Brite Moon
385	anon gal		"	16 49 07	+5°01.2	July 2	9:51	12:35	164	He 10-10 Ne 2-2	1.14	7.3	15	9°00	2W45	1-3	103aD	MI		p.a. 130°
386	anon neb		"	17 28 07	-21°30.7	July 3	8:58	12:58	240	He 10-10	"	"	"	8°30	2W37	1-2	IIaO 6Kd	"		
387	NGC6166		"	16 27 08	+39°39'	July 4	9:33	10:08	35	"	"	"	"	8°00	0W46	3-5	"	"		p.a. 60° through NGC6166 and companion
388	Δ+5(9)		#1	17 19 21	-27°05.8	"	11:43	12:13	30	Ne 1-1	"	"	"	18°30	2W0	2-3	103aE	"		
389	Cyg Loop		"	20 47 22	+30°46'	"	14:42	15:12	30	"	"	"	"	"	1W31	3	"	"		8' foll, 8' N of BD30°4185
390	Δ+5(9)		"	17 19 21	-27°05.8	July 5	9:05	9:35	30	"	"	"	"	"	0E36	1	"	"		
391	Δ+5(10)		"	17 48 06	-30°23.1	"	10:34	11:04	30	"	"	"	"	"	0W25	3-1	"	"		
392	"		"	"	"	"	11:24	11:44	20	"	"	"	"	"	1W04	2	"	"		
393	1819 13 (2)		"	18 30 29	-10 18.6	"	12:09	12:54	45	"	"	"	"	"	1W34	2-3	"	"		
394	Cyg Loop		"	20 46 40	+36°42'	"	13:27	15:00	93	"	"	"	"	"	2W21	3-4	"	"		1.5 prec, 3' N of BD30°4185 p.a. 0°
395	174030 (43)		"	17 25 38	-30°5.5	July 6	9:00	9:30	30	"	"	"	"	"	0E43	1-2	"	"		
396	"		"	"	"	"	9:49	10:09	20	"	"	"	"	"	0E04	1-2	"	"		
397	Δ-5(2)		"	17 47 13	-29°24.5	"	10:42	11:02	20	"	"	"	"	"	0W27	<1-1	"	"		
398	"		"	"	"	"	11:23	11:38	15	"	"	"	"	"	1W03	1	"	"		
399	1819 13 (8)		"	18 21 21	-11°8.4	"	12:22	12:52	30	"	"	"	"	"	1W44	1-2	"	"		
400	Cyg Loop		"	20 48 54	+31°21	"	13:45	15:00	75	"	"	"	"	"	1W25	2-3	"	"		1.2 prec, 4.8 S of BD30°4231
401	"		"	20 49 26	+30°45'	July 7	10:31	15:01	270	"	"	"	"	"	1W32	2-3	"	"		9'.2 foll BD30°4196
402	NGC6826	vapg	"	19 43 34	+50°24.7	July 8	8:50	14:05	270	NGC 6826 (center) 4' W, 2' E	"	"	"	"	1W43	2-3	"	"		Lost 45m to clouds. Outer envelope 50' S of center
403	HZ 29	13.9	63B	12-32-24	+37°55	July 13	8:43	9:28	45	He 60	3"	7.0	9	7°50	5W37	1	IIaO Baucch	JLG	✓	w1 Δ2 some D
404	L1491-27	14.6	"	16-37-24	+33°32	"	9:51	10:41	50	"	"	"	"	"	1W45	2	"	"	✓	w1 Δ1
405	Ross 640	14.0	"	16-26-48	+36°51	"	10:55	11:56	61	"	"	"	"	"	3W11	1	"	"	✓	w1 Δ2
406	L1573-31	14.4	"	19-40-24	+37°24	"	12:35	14:36	121	"	"	"	"	"	2W38	1	"	"	✓	w2 Δ2
407	L1363-3	13.3	"	21-40-17	+20°45	"	15:05	15:32	27	"	"	"	"	"	1W35	1	"	"	✓	w2 Δ2 some dew
408	DQ Her	14.2	"	18-06-05	+45°51	July 14	12:15	12:45	30	He 60 2C 30 IC	"	"	"	"	2W24	2	"	"	✓	w2 Δ1 slit EW
409	L1363-3	13.3	"	21-40-17	+20°45	"	1:11	1:51	40	He 60	"	"	"	"	0E03	3	"	"	✓	w2 Δ2
410	L930-80	14.8	"	21 44 58	-7°58	"	2:19	3:21	62	" "	"	"	"	"	2W22	3	"	"	90	w2 Δ1
411	Nova Oph 1848 ≈14		"	16-56-39	-12°49	July 15	12:30	13:30	60	He 60	"	"	"	"	4W34	3	"	"	120	w2 Δ2
412	Nov DQ Her	14.2	"	18-06-05	+45°51	"	13:47	14:17	30	"	"	"	"	"	4W00	4	"	"	✓	w2 Δ1 slit ew
413	L1140-73	14.2	"	19-41-54	+8°47	"	14:39	15:14	35	"	"	"	"	"	3W23	4	"	"		w2 Δ1
414	+28°4211	10.1	"	21-48-56	+28°37	"	15:24	15:35	11m 32s	He 90	"	"	"	"	1W47	4	"	"	45m	w2 Δ2 = 1m several ΔC3 = 2m, ΔC5 = 3m
415	Nova Sgr 1913	15.2	"	20-05-21	+17°33	July 16	13:00	14:00	60	He 30	"	"	"	"	1W48	4	"	"	✓	w3 Δ1 slit NS

No.	Object	Mag.	Sp.	R. A. (1950)	Dec.	Date 1956	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 416	Wolf 1516	13.6 pg	63B	1-15-20	+15°56	July 16	14:20	15:10	50	He 60	3"	7.0	9	7°30	2E11	3	IIa-0 Bu+A	JLG	v	2 w3 E W w3 Δ2
417	+28°4211	10.1	"	21-48-56	+28°37	"	15:19	15:32	3m 6m	He 90	"		10	"	1W47	3	"	"	v	Hp. 130" several Δ2 w3 Δ3
418	Nova Sge	15.2	63B	20-05-21	+17°33	Aug. 15	12:56	14:08	72	He 60	3"	7.0	10	7°50	3W54 W47	3	IIa-0 Bu+P	JLG	v	Δ1 w2 Trail NS
419	L 1363-3	13.3	"	21-40-17	+20°45	"	14:26	14:56	30	"	"	"	10	7°50	3W09	4	"	"	v	Δ2 w2 " EW
420	L 1512-34B	13.1	"	23-41-24	+32°15	"	15:17	15:43	26	"	"	"	⊕	"	1W54	4	"	"	v	Δ2 w2 " EW w3 Dust
421	L 1512-34A	13.4	"	23-41-23	+32°18	"	15:52	16:07	15	"	"	"	9	"	2W18	4	"	"	v	Δ1 w2 " EW w3
422	LSA 68-35	13.1	"	0-09-20	+14°31	Aug. 16	13:55	14:20	25	"	"	"	9	"	0W06	4	"	"	v	Δ2 w2 EW
423	w 1516	13.6	"	1-15-20	+15°56	"	14:32	15:22	50	"	"	"	9	"	0W07	4	"	"	v	Δ2 w2 "
424	LSA 68-33	13.7	"	0-15-05	+14°35	"	15:39	15:54	20	"	"	"	9	"	1W00	4	"	"	—	Δ1 w2 "
425	VMa 2	12.9	"	0-46-32	+5°09	Aug. 17	14:46	15:06	20	"	"	"	9	"	0W20	2	"	"	—	Δ2 w2 NS
426	VMa 2	12.9	"	"	"	"	15:11	15:51	40	He 90	"	"	11	"	1W05	2	"	"	—	Δ2 w2 NS Fog 4V
N 427	T 15 = NGC 263	Gal	63B	0-46-19	−12°49'	Sept. 14	13:23	16:23	180	He 40-90	3in	7.0	9	7°40'	3W23	3-1	IIa-0b	MÜ		p.a. 124°
428	T 18	"	"	2-36-55	−27°39'	15	14:08	16:25	137	"	"	"	"	"	1W39	3-2	103a-0	"		p.a. 90° (EW)
429	NGC 1952		#1	5-31-32	+22° 0'	16	14:40	16:25	105	Ne 3+3	"	"	"	18°30'	1E07	2	103a-F	"		p.a. 221° Red filter
430	NGC 6888		"	20-10-29	+38° 13'	17	11:28	12:58	90	"	"	"	"	18°45	4W50	3	"	"		p.a. 62° "
431	NGC 1952		"	5-31-32	+22° 0'	18	14:21	16:25	124	"	"	"	"	"	1E07	2-1	"	"		p.a. 254°3 "
432	"		"	"	"	19	15:27	16:27	60	"	"	"	7	"	0E59	1	"	"		p.a. 257°5
433	Cl. 0024+1654	Neb. 213	63B	0 24 0	+16 52.9	Sept. 28	7:00	12:20	320	He 3	S.Bl.	7.4	13	10°20'	0W41	2-3	502, 763 103a-D	H	Sky 44	Base 90°. Sky 41.
"	" " "	"	"	"	"	29	7:00	13:40	400	—					2W05	1-2			44	
"	" " "	"	"	"	"	30	6:55	12:30	335	Ne 3					0W59	2-4			42	Clouded over.
"	" " "	"	"	"	"	Oct. 1	8:05	15:45	500	—					4W19	1-3			66	
"	" " "	"	"	"	"	2	6:50	7:15	25	He 3					4E07	1			—	Fogged over.
"	" " "	"	"	"	"	5	6:45	16:00	555						4W50	2-3			54	
"	" " "	"	"	"	"	6	8:40	15:15	395	Ne 3, He 3					4W10	2-1			40	Fog early and late.
"	" " "	"	"	"	"	7	7:55	16:00	485	Ne 3					5W00	4-6			48	Total exp. ± 50m.
434	M 33 Red #2	pg	63B	1 30 20 (1957)	+30 39.2	Oct. 26	7:33	11:19	326	He 3.0	S.Bl.	7.4	9	8°40'	0W25	2-3		H-S	Sky	
435	NGC 7419 I-59	15.3	"	22 52 31	+60 37	"	12:11	13:47	96	He 35	3"	7.0	9	7°35'	5W32	2-3	IIa-0	ARS	120	w2 ½ across.
436	HD 17378	7.2	"	2 46 19	56 54 12	"	14:35	14:35	8s	"	"	"	"	"	2W46	2			ok	w2. 4 sweeps with Set Station
437	HD 16778	8.6	"	2 40 41	59 38 06	"	15:38	15:38	30s	"					3W34	2			ok.	w2 15 sweeps " "
438	HD 76396	8.8 vis	"	8 54 42	51 35 06	"	16:33	16:38	5m	"					1E39	"			3m	w2
439	NGC 7419 I-59	15.3		22 52 31	+60 37	Oct 27	6:39	9:39	180m	"	"	"	"	"	1W26	1			ok.	w1
440	NGC 7419 I-50	15.7		"	"	Oct 29	6:19	10:19	240m	He 60	"	"	"	"	3W13	1-3			o.k.	w1 clouds part time
441	HD 14899			2 23 15	+57 02	"	11:05	11:06	1m	⊥					0E29	2			"	Window #2
	HD 15497			2 28 45	57 30	"	11:11	11:12	"	—					0E13.	"			"	" #2C lower
	HD 13744			2 12 50	+58 05	"	11:15	11:16	"	⊥					0E09	"			"	" " upper

No.	Object	Mag.	Sp. Cl.	R. A. 1957	Dec. 1957	Date	EXPOSURE Beg.	EXPOSURE End	EXPOSURE Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
	HD 13745		B0 IV	2 12 40	+55 48	Oct 29	11:54	11:55	1m	none	3"	7.0	0.09	7°35'	0W31	3	IIa-0	ARS	ok	Window 2c upper
N 442	HD 13866		B2 II	2 13 53	+56 31	"	11:58	11:59	1m	—					0W32	3	"		"	" 2
	HD 13267		B5 II	2 08 28	+57 27	"	12:02	12:02	38s	—					0W42	3	"		"	" 2c lower
443	BD 55°529			2 7 13	+56 22	"	13:19	13:24	5m	—					2W06	3	"		"	
	BD 56°583			2 19 18	+56 55	"	13:31	13:36	5m	—					2W05	3	"		"	
444	HD 19557			3 08 23	+57 43	"	14:16	14:19	3m	—					2W00	4	"		"	
	HD 25408			4 02 13	+61 46	"	14:24	14:28	4m	—					1W14	4	"		"	
	HD 76396			8 54 42	+51 35	"	14:36	14:40	4m	—					3E26	4	"		"	
445	HD 25408			4 02 13	61 46	"	15:18	15:20	2m	—					3W49	2	"		"	
	BD 56°583			2 19 18	56 55	"	15:24	15:25	1½m	—					3W55	2	"		"	
446	HD 25408			4 02 13	61 40	"	16:06	16:08	2m	He 30s					2W53	2	10340		"	
447	NGC 7419 II 50	18.3	63B	22 52 31	60 37	Oct 30	6:21	12:16	355	"					4W15	4	"		"	Window 1 Trailed ½
448	−11°163	11.2	63B	0 49 45	−10 59	Nov. 9	12:39	12:46	7	He 60	3"	7.0	0.07	7°58'	2W16	1	IIa-0 B4d	JLG	✓	Δ2 cal. w4 Intensity 27
449	Wolf 249	15.5	"	3 41 36	+18 18	"	13:08	14:30	82	60	"	"	"	"	2W19	2	"	"	✓	Δ1 "
450	HZ 9	14.2	"	4 29 23	+17 38	"	14:57	15:51	60	30-30	"	"	"	"	2W53	2	"	"	✓	Δ2 "
451	HZ 14	13.5	"	4 38 13	+16 53	"	16:16	16:47	31	60	"	"	"	"	3W37	1	"	"	✓	Δ1 "
452	Wolf 219	15.5	"	3-41-36	+18 18	Nov. 10	12:54	16:32	220	30-30 w3c 30-30 w1	"	"	0.09	"	5W25	2-3	"	"	✓	Δ1c. cal. w4. Dome very bright
453	Feige 11 = F11	11.5	"	1-01-42	+3 58	Nov. 11	13:16	13:32	16	60	"	"	0.07	"	4W07	2	IIa-0	"	20	Δ2 w5
454	L 879-14	13.9	"	4-35-26	−8 53	"	14:09	14:50	41	30-30	"	"	"	"	1W51	2	"	"	35	Δ1 w5
455	HZ 2	13.7	"	4-10-04	+11 54	"	15:19	15:49	30	60	"	"	"	"	3W15	2	"	"	✓	Δ1 w5
456	L Hya. #5	13.8	"	4-23-55	+16 49	"	16:08	16:47	39	"	"	"	"	"	4W02	2	"	"	✓	Δ1 w5
457	L 879-14	13.9	"	4-35-24	−8°53	Nov. 12	14:11	16:15	124	4	"	"	"	"	3W20	<1	IIa-0 B4d	"	180	Δ2 w5
458	L 745-46A	13	"	7-38-04	−17°18	"	16:34	17:00	26	"	"	"	"	"	1W04	<1	IIa-0	"	✓	Δ1 w6
459	T14 = NGC 244		63B	0-43-23	−15° 38'	Nov. 24	7:43	10:43	180	He 20+20	3"	7.0	9	7°45'	2W30	1	IIa-0 4	Mü	✓	Δ2
460	NGC 1952		64B	5-31-32	+22° 0'	"	11:17	12:47	90	Ne 5+5	"	"	"	11°30'	0E14	1-2	103a-F	"		Δ3 p.a 33°.5
461	* S of Cas. Source		64B	22-20-40	+58°28'	Nov. 25	6.24	6.53	29	He 30+30	"	"	"	14°30'	0E06	1	IIa-0	"	20m	Δ1
462	T13	Irr	63B	0-37-56	−21°16'	"	7:24	9:59	150m	He 20+20	"	"	"	7°45'	1W50	1	4 IIa-0	"		Δ3 p.a. 22°.8
N 463 a	NGC 40		1	0H 10M 48S	+72°16'20"	Dec 10	7:02	7:02	30s	—	3"S	7.0	9	17°45'	0 W 19	2	IIa-0	O		RING W. OF STAR V
b	"			"	"		7:04	7:06	90s	—					0 W 23	2				PA 16°.0
c	"			"	"		7:07	7:12	270s	—					0 W 29	2				
464a	"			"	"		7:23	7:24	90s	—					0 W 47	2	IIa-0			INSIDE RING W.
b	"			"	"		7:25	7:30	5m	—					0 W 53	2				OF STAR
c	"			"	"		7:32	7:47	15m	—					1 W 10	2				P.A. 16°.0
465a	IC 1747			1H 54M 16S	+63°06'25"		8:38	9:04	26M	—					0 W 43	2	IIa-0			NORTH OF STAR
b	"			"	"		9:06	9:15	9M	—					0 W 54	2				
c	"			"	"		9:15	9:19	4M	—					0 W 58	2				
466	NOVA PER 1901			3H 28M 11S	+43°45'27"		10:44	12:14	90m	He 30s					2 W 19	2	IIa-0 BKD			PA 128°.1 SHELL S.W. OF NOVA

	No.	Object	Mag.	Sp. Gr.	R. A.	Dec.	Date 1956	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N	467	NGC 1952 #2		1	$5^h31^m51^s$	+22°00'00"	Dec 10	12:41	14:41	2^h	He 60^s	3"S	7.0	8	17°45'	2W43	2	IIa-O BKD	O		PA 12°.3
	468	NGC 1952 #3			"	"		15:07	17:07	2^h	He 15^s					5W09	2-1	"			PA 103°.2
	469	Nova T Pyx	14.1	63B	9-02-33	-32°11'	Dec. 11	13:51	15:21	90^m	No 30+30	3"S	7.0	8	7°55	0E04	<<1	IIa-O	JLG	X2	Δ1 w4
	470	LDS 275 A+B	14.2	"	9-35-00	-37°07	"	15:40	17:20	100^m	"	"	"	"	7°55	1W13	<<1	"	"	X2	Δ1 w4 Both stars
	471	LDS 275 A	14.9	"	9-35-00	-37°07	Dec. 12	14:42	17:00	138	"	"	"	9	8°05	1W07	2	"	"	✓	Δ1 w3 Mainly @ & seeing good
	472	L 971-14	15.0	"	11-15-48	-2°58	Dec. 13	15:42	17:12	90	"	"	"	8	8°05	0E18	2	"	"	✓	Δ1 w2
N	473	T 16		64B	1-47-40	-28° 1'	Dec 22	6:48	7:48	60	He 30+30	1.5S	7.3	14	14°30'	0W20	1-	103a O	MÜ		p.a 180°
	474	T 17			1-47-42	-20° 3'	"	8:02	9:02	"	"	"	"	"	"	1W35	1-	"	"		
	475	NGC 1345: T 21			3-27-17	-18° 2'	"	9:24	10:24	"	"	"	"	"	"	1W17	1	"	"		p.a. 211°
	476	T 19 a, b		63B	3-2-51	-27°31'	Dec 23 1957	6:53	10:13	200	"	3"S	7.0	9	7°35'	1W35	1	"	"		p.a 217°.5
	477	R 627	13.8	63B	11-21-42	+21°37	Jan. 8	13:29	15:09	100	He 30+30	3"	7.0	9	7°55	0E42	<1	IIa0 BKD	JLG	✓	Δ2, w1 Sky bright clouds
	478	HZ 21	14.2	"	12-11-24	+33°12	"	15:41	17:15	94	"	"	"	"	"	0W32	1	"	"	✓	3/4 Δ2, w1 " "
	479.	NGC 1952		1	5-31-50	+22° 0'	Feb 16	7:08	9:38	150	Ne 3+3	3"S	7.0	8	18°40'	2W06	2-3	103a-F	MÜ		pa 297°.3 PA
	480.	"	"	"	"	"	17	6:57	8:27	90	"	"	"	"	18°20'	0W58	1-2	"	"		303°.5 PS E
	481.	"	"	"	"	"	"	8:51	10:21	90	"	"	"	"	"	2W56	1	"	"		" PS W
	482.	Cl. 1011+6839	Neb. B13	98B	10 13 13	+68 37.3 (1957)	Feb. 21	7:10	13:20	310	He 4-4	1.4S	7.3	14	4°20'	1W24	2-4	Baked IIa-O	H	sky 32	Base 180°
		"	"	"	"	"	23	7:00	11:20	260	4-4	"	"	"	"	0E28	2			36	
		"	"	"	"	"	25	6:58	10:48	230	4	"	"	"	"	0E48	2-3			34	Too much sky.
	483.	"	"	"	"	"	"	11:57	16:00	243	8-8	"	"	"	"	4W24	3-2				Good. Nom member:
N	484.	NGC 2974	E4	#1	$9^h40^m21^s$	-3°31'	MAR 4	8:44	11:19	155	He 2^m	3"S	7.0	8	17°50'	0W49	2	BKD IIa-O	O		5970 FILTER } THRU CIRRUS, } GRAD. THICKER
	485.	NGC 1976-BB		"	$5^h33^m24^s$	-5°34'00"	MAR 6	7:42	8:03	15M TOTAL	He 1^m	"	"	"	17°45'	1W40	2	IIa-O	O		THRU CLOUDS, STOPPING
	486.	NGC 4278	E1	"	$12^h18^m21^s$	+29°31'40"	"	10:12	11:39	}	He 90^s	"	"	8.5	"			BKD IIa-O			EXPOSURE AT TIMES # 5970 FILTER THRU
	"	"		"	"	"	"	13:15	15:48	} 240M		"	"	"	"	2W43	2-3				CLOUDS. BASE 270°
	487.	NGC 2974	E4	"	$9^h40^m21^s$	-3°31'	MAR 7	7:28	10:28	180M	He $2\frac{1}{2}^m$	"	"	"	"	0W03	2-3	BKD IIa-O	O		5970. BASE 227°
	488.	NGC 4278	E1	"	$12^h18^m03^s$	+29°31'40"	"	10:54	11:54	60M	He 1^m	"	"	"	"	1E08	3	"			" " 270°
	489.	NGC 4486	E0	"	$12^h28^m39^s$	+12°37'40"	"	12:12	13:12	60M	He 2^m	"	"	"	"	0W01	3	"			" " 200°
	490.	"	"	"	"	"	"	13:22	13:37	15M	"	"	"	"	"	0W24	3	"			" " "
	491.	NGC 4278	E1	"	$12^h18^m03^s$	+29°31'40"	"	13:53	14:13	20M	He 3^m	"	"	"	"	1W11	3	"			" " 270°
	492.	"	"	"	"	"	"	14:22	14:28	6M	"	"	"	"	"	1W26	3	"			" " "
	493.	NGC 5173	E0	"	$13^h26^m35^s$	+46°47'49"	"	14:49	16:19	90M	"	"	"	"	"	2W09	3	"			" " 90°
	494.	"	"	"	"	"	"	16:29	16:49	20M	"	"	"	"	"	2W39	3	"			" " "
	495.	M81 IIIsfB1	Sb	1	9-52-39	+69° 2'	Mar 10	13:58	16:56	178M	He 3+3	3"	7.0	9	18°20'	6W29	1-2	103aF	MÜ		Red Plex. Base 266°.7
	496.	Nov Pup 1942	Em	98B	8-09-52	-35°12	May 20				No 18 He 30	"	"	7	4°30		<1	IIaF	JLG		
	497.	LFT 630	HK	"			"				"	"	"	"	"		2		"		
	498.	Cl. 0855+0321	Neb 8+9	98B	8 55 23 (1957)	+3 21.7	Mar. 22	7:16	10:30	194	He 3-4	5.8	7.3	14	4°0'	1W50	1-2	Baked IIa-O	H		Base 150°, Sky 4?
	499.	Cl. 1044+0919	Neb. #6	98B	10 44 11	+9 19.7		11:32	12:55	85	" 3	"	7.1	"	3°46'	2W26	2	"			
	"	"	"	"	"	"	Mar. 23	7:15	9:55	160	" 4	"	"	"	"	0E30	2-3	"			

No.	Object	Mag.	Sp.	R. A.	Dec.	Date 1957	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N																	Baked			
500.	Cl. 1044+0919	63B	Neb. 6	10 44 11	+9 19 40	Mar. 23	~~9:15~~	~~9:55~~	~~160'~~	~~He 4-3~~	S.B.	7.3	14	~~8° 0'~~	~~0E30~~	2-3	IIa-O	H		~~Clouded over.~~
"	"	"	"	"	"	"	11:00	13:25	145	He 4-3	"	"	"	8° 0'	3W 00	"				
"	"	"	"	"	"	Mar. 24	7:15	12:29	314	" 4-4	"	"	"	"	2W 07	2-3				
"	"	"	"	"	"	Mar. 25	10:21	13:11	170	" 4-4	"	"	"	"	2W 34	3-5				Thick at end.
501.	Cl. 1239+2748	98B	N 5	12 39 51	+27 49 15	Mar. 26	9:26	13:00	214	" 4-4	"	"	15	3°45'	0W 15	2-3			G	Cloudy earlier.
502.	"	"	N 9	12 39 48	+27 49 10		13:40	14:40	60	" 4	"	"	"	"	1W 55	2				Thick sky.
503.	NGC 3115	64B		10 03 06	-7 30	May 31	7:43	11:43	240'	He 45-45	3"	7.0	8	15°30'	2W 31	<1	IIa O Bkd	Mi		p.a. 45° Calibr. 4h
504.	NGC 4278	"		12 17 58	+29 31	"	12:03	12:13	10'	$He\,20^s$ $Ne\,120^s$	1.4"	7.1	15	18°30'	0W 46	<1	103aJ			Wratten #4 filter.
505.	NGC 4486	"		12 28 39	+12 38	Apr. 30	7:58	14:43	405	He 45-45	3"	7.0	8	15°30'	5W 04	2-4	IIa Bkd	Mi		p.a. 290° Calibr. 6h
506.	"	"		"	"	May 1	"	14:43	405	$He\,1^m-1^m$ $Ne\,5^m-5^m$	"	"	"	14°00	5W 08	1-3	"			"
507.	Cl. 1332+2028	18B	Neb. 1+2	13 32 10	+20 28.2	May 2	10:57	11:57	60	He 6	1.4"	7.2	14	4°30'	1W 21	3-5	103a-O	H	G	Offset test. Base = 90°. Surveyed. 1 = red neb. 2 = blue neb.
508.	"	63B	"	"	"		13:19	15:00	101	He 4	"	"	12	8°30'	4W 25	5-2	Baked IIa-O			
"	"	"	"	"	"	May 3	10:30	15:00	270	4	"	"	"	"	4W 30	3 4	"			
"	"	"	"	"	"	May 4	11:15	13:15	120	4	"	"	"	"	2W 43	3	"		G	
509.	"	"	3	13 32 8	+20 28 0		13:47	15:00	73	4	"	"	"	"	4W 33	3	"			No. 3 = red neb.
"	"	"	"	"	"	May 5	12:05	15:00	175	8	"	"	"	"	4W 38	2	"			
510.	Feige 66=F65	"	63B	12 33 24	+42 39	May 19	9:23	9:37	14	He 6	3"	7.0	7	7°50	1°07	<<1	IIa-O 13aJ	JGG	-	D1 W1
511.	Feige ~~21~~=F81	"	"	13 27 24	+15 56	"	10:19	10:49	30	" $+Ne_{30}$	"	"	"	"	1°25	<<1	"	"	-	D1 W1
512.	Feige=F84 ~~23~~	"	"	13 32 48	+13 43	"	10:57	11:30	33	" "	"	"	"	"	2°01	<<1	"	"	-	D2 W1
513.	anon gal Tr	9	63B	10 29 45	+54 38	May 31	8:42	9:12	30	He 10-10	1.4"	7.3	15	7°45'	3W 33	2	IIa O Bkd	Mi		p.a. 154°
514.	Supernova NGC 4374	13.5	"	12 22 54	+13 08	"	9:23	9:53	30	He 60-60	3"	7.0	9	"	2W 21	2	"			
515.	NGC 4670 (Tr)	"	"	12 43 10	+27 21	"	10:32	11:02	30	He 10-10	1.4"	7.3	15	"	3W 10	2	"			P.a. 75°
516.	Cyg Loop (NGC 6992)	11QB		20 54 38	+31 34.1	"	12:15	13:15	60	Ne 1-1	"	"	20	18°30'	2E 47	2-3	103a F(3)			1:SE 2.6N of BD 31° 4274 Plexiglas 304 filter
517.	NGC 7027		"	21 05 26	+42 04	"	14:16	14:19.3	200^s	—	"	"	"	"			"			Plexiglas 304 filter
							14:22	14:23.4	100^s	—	"	"	"	"						Screen 5 mag
							14:25	14:26	50^s	—	"	"	"	"						
							14:27		25^s	—	"	"	"	"	1E 43	2-3				
518.	Cyg Loop (NGC 6960)	"		21 44 51	+30° 52.7	June 1	12:02	13:07	65^m	Ne 1 1	"	"	"	"	2E 37	3	"			2.0 E of BD 30° 4166 Plexiglas 304 filter
519.	NGC 7027		"	21 05 26	+42° 04	"	13:57	12:09	12^m	—										~~Plexiglas 304~~
							14:10	14:16	6^m	—										Plexiglas 304 filter
							14:18	14:21	3^m	—										Screen 5 mag
							14:22	14:23.5	90^s	—										
							14:25		45	—	"				1E 44	3				
520.	NGC 7027		"	"	"		14:14	14:53	9^m	—	"	"	"	"						
							14:54	14:58.5	270^s	—										Plexiglas 304 filter
							15:01	15:02	135^s	—										Screen 5 mag
							15:03	15:04	68^s	—										
							15:05		34^s	—					1E 04	3				

No.	Object	Mag.	Sp.	R. A.	Dec.	Date 1957	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N521	Cyg Loop (NGC6960)		119B	20h 44m 12s	+30° 40'.3	June 2	12:17	13:47	90m	—	1".4	7.1	20	18°30'	2E53	3-4	103aF(3)	MI		Plexiglas 304 filter 3.3E 6.5N of BD 30°4167
522	NGC 7027		"	21h 5m 39s	-42° 04'	"	14:42	14:54	12m	—	"	"	"	"			"			
							14:56	15:03	7m	—	"	"	"							
							15:10	15:14	249s	—	"	"	"							Plexiglas 304 filter Screen 5 wire
							15:16	15:18	146s	—	"	"	"							
							15:19	15:20	86s	—	"	"	"		0E45	3-4				
523	anon gal (T2)		63B	10 29 45	+54° 33	June 3	8 33	8 43	10m	He 10-10	"	7.1	15	7°45'	3W11	2	IIaO Bka			p.a. 154°
524	NGC 4670 (T11)		"	12 43 10	+27° 21'	"	9:20	9:30	10m	"	"	"	"	"	2W10	2	"			p.a. 75°
525	Supernova NGC 4374	11?	98B	12 22 54	+13 08	"	9:49	10:19	30m	He 60-60 Ne 5-5	3"	7.0	9	4°50'	2W58	2	103aF(3)			(4°50' to far to red (4°40' too far to blue)
526	Cyg Loop NGC 6992		"	20 55 22	+31° 21'.7	"	11:21	14:51	210m	He 10-10 Ne 1-1	1".4	7.1	20	4°40'	1E01	3	"			3.6E 3.8S of BD 31°4274
527	Cyg Loop/NGC 6960		119B	20h 44m 12s	+30° 40'.3	June 4	11:49	14:49	180m	Ne 1-1	"	7.2	"	18°30'	0E55	2-3	"			Plexiglas 304 filter 3.3E 6.5N of BD 30°4167
528	HZ 22	13	63B	12 12 16	+36 56	June 21	9:06	9:31	25	He 30-30 Ne 20-20	3"	7.0	7	7°50'	3W32	2	IIaO BKD	JLG	—	Δ2 w1
529	Wolf 489	16	"	13 34 18	+3 58	"	9:49	11:49	120	"	"	"	"	"	4W28	3	"	"	180	Δ1 " sky very Bright!
530	Feige ~~K III~~ F12	13	"	20 46 48	+30 05	"	12:17	12:47	30	"	"	"	"	"	1E48	4	"	"	—	Δ2 "
531	+37°2318		"	12-42-18	+37 02	June 22	8:43	8:57	3m 5m	"	"	"	"	"	2W31	3-4	"	"	3m	Δ1, Δ2c. Several w. Expos.
532	HZ 22	13	"	12 12 16	+36 56	"	9:05	9:35	30	"	"	"	"	"	3W40	3	"	"	—	Δ2 w2
533	Wolf 489	16	"	13 34 18	+3 58	"	9:52	11:52	120	"	"	"	9	"	4W35	2	"	"	—	Δ1 w2 sky bright
534a	Nova Aql 1918	11	"	18 46 23	+0 31	"	12:15	12:34	13m 5m	"	"	"	7	"	0W05	1	"	"		Δ2 Δ3c w2
b	Ross 137	14	"	18 24 44	+4 02	"	13:05	13:50	45m	"	"	"	7	"	2W42	1-2	"	"		Δ1 w2 some Moon
535	Feige ~~6~~ F43	13	"	11 26 30	+38 28	June 23	8:28	9:08	35	"	"	"	7	"	3W57	3	IIaO BKD	JLG	—	Δ1 w2
536	Feige ~~8~~ F46	13	"	11 34 54	+14 27	"	9:15	9:35	20	"	"	"	7	"	4W20	2	Lumbercolor	"	—	Δ1 w2
537	HZ 38	14	"	12 57 02	+27 48	"	9:49	10:22	33	"	"	"	7	"	3W46	3	"	"	—	Δ1 w2
538	HZ 41	14	"	13 14 54	+39 19	"	10:42	11:27	45	"	"	"	7	"	4W32	2	"	"	—	Δ1 w2
539	Nov. Oph. 1848	13	"	16 56 39	-12 49	"	11:50	12:30	40	"	"	"	7	"	1W55	2	"	"	—	Δ2 w2
540	Ross 137	14	"	18 24 44	+4° 02	"	12:52	13:53	61m	"	"	"	7	"	1W48	3	"	"	—	Δ2 w2
N 541a	NGC 6611(A1)		119-B	18h 16m 30s	-13° 49' 38"	July 21	9:06	9:09	2½m	—	3"	7.0	8.5	12°45'	0E55	4	IIaO BKD	O		#119-B. BASE 197°.1
b	"		"	"	"	"	9:13	9:23	10m	—	"	"	"	"	0E41	4-3			10m	SOUTH COMP. WINDOW. "
542	NGC 6611(A2)		"	"	"	"	9:35	11:35	120m	He 30s	"	"	8.6	"	1W30	2-3	"	"	80m	BASE 197°.1 SLIT THRU CONDENSATION IN FAINT ENVELOPE S940
543	NGC 6543		"	17h 58m 34s	+66° 38' 08"	"	12:19	13:49	90m	He 90s	"	"	"	"	4W03	2	"	"	G	
544	NGC 1052		"	2h 38m 56s	-8° 26' 12"	"	14:30	15:00	30m	Ne 90s	"	"	"	"	3E27	2	"	"	60m	BASE 294°.0. FILTER.
N 545a	NGC 6611(A1)		"	18h 16m 30s	-13° 49' 38"	July 22	8:48	8:56	8m	—	"	"	"	"	1E05	2	"	"		BASE 197°.1
b	"		"	"	"	"	9:00	9:15	15m	—	"	"	"	"	0E45	2			10m	"
546	NGC 6611(A2)		"	"	"	"	9:26	10:46	80m	He 60s	"	"	"	"	0W46	2-3	"	"	G	"
N 547	"		"	"	"	July 23	8:46	10:06	80m	"	"	"	"	"	0W09	2	"	"	G	"
N 548a	HD 169454	7.4	63B	18h 22m 49s	-14° 0' 12"	July 29	9:00	9:01.5	1½m	—	3"	7.0	9	7°50'	—				—	1 dec trail
b			"	"	"	"	9:02	9:05	3m	—	"	"	"	"	0E34	3-4	IIaO BKO	Co	10s	2 " "
N 549	NGC 6822 **1	17	"	19h 42m 10s	-14° 48' 21"	"	10:34	14:06	212m	He 60s	"	"	"	"	3W07	2-3	"	"	400m	width ⅛ Δ2

No.	Object	Mag.	Gr Sp.	R. A.	Dec.	Date 1957	EXPOSURE Beg.	End	Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N 550	M31 *12	17	63B	0h 35m 46s	+40°13'00"	July 29	15:19	15:40	21m	He 60s	3"	7.0	9	750'	OE 11	2	IIaO BKD	Co		unwidened
N 551	HD161464	7.0	"	17h 42m 42s	+33°14'34"	July 30	8:31	8:32	20s	—	"	"	"	"	OE 24	2-3	"	"	½	10 trails Δ2
N 552 a	"	"	"	"	"	"	8:49	8:49	10s	He 60s	"	"	"	"	OE 05	"	"	"	ok	5 Trails Δ2cW
b	"	"	"	"	"	"	8:56	8:58	2m	—	"	"	"	"	OW 03	"	"	"	ok	*Aperture 100" Δ2cE
N 553 a	HD169454	7.4	"	18h 22m 49s	-14°00'12"	"	9:15	9:15	10s	—	"	"	"	"	OE 20	1-2	"	"		Δ2c
b	"	"	"	"	"	"	9:16	9:17	20s	—	"	"	"	"	OE 18	"	"	"	ok	Δ2c
c	"	"	"	"	"	"	9:18	9:20	2m*	—	"	"	"	"	OE 16	"	"	"		*Aperture 100" Δ2
N 554	NGC 6822 *2	17	"	19h 42m 20s	-14°48'30"	"	9:56	13:20	204m	He 60s	"	"	"	"	2W 26	1-2	"	"	weak	¼ Δ2
N 555	M33 *170	16.8	"	1h 31m 37s	+30°31'00"	"	14:02	15:40	98m	He 60s	"	"	"	"	1E 02	3	"	"	ok	¼ Δ2
N 556	NGC 6822 *1	17	"	19h 42m 10s	-14°48'21"	July 31	9:30	14:35	305m	—	"	"	"	"	3W 44	1-2	"	"	weak	*Clouds during exp.
N 557	M33 Nucleus		"	1h 31m 38s	+30°27'50"	"	15:21	15:42	21m	He 60s	"	"	"	"	OE 56	2	"	"	ok	Clouds.
N 558 a	HD166734	9.5	"	18h 10m 03s	-10° 46'6"	Aug 1	8:34	8:35	1m	—	"	"	"	"	OE 40	2	"	"		Δ2c } 20 trail
b	"	"	"	"	"	"	8:36	8:38	100s	—	"	"	"	"	OE 37	2	"	"	ok	Δ2c } 1 slow trai
N 559 a	HD168625(E)	9.2	"	18h 18m 50s	-16°23'42"	"	8:55	8:56	1m	—	"	"	"	"	OE 28	"	"	"		20 trails Δ2c
b	"	"	"	"	"	"	8:57	8:59	100s	—	"	"	"	"	OE 25	"	"	"	ok	1 slow trail Δ2c
N 560 a	HD168607	"	"	18h 18m 24s	-16°23'45"	"	9:09	9:10	1m	—	"	"	"	"	OE 14	"	"	"		20 trails Δ2
b	"	"	"	"	"	"	9:12	9:14	100s	—	"	"	"	"	OE 10	"	"	"		Δ2c
N 561 a	HD186994	6.9	"	19h 44m 19s	+44°51'28"	"	9:34	9:34	8s	—	"	"	"	"	1E 15	"	"	"		Δ2
b	"	"	"	"	"	"	9:39	9:41	100s	—	"	"	"	"	1E 08	"	"	"	ok	*Apert 100" Δ2c
N 562 a	HD 194279	7.7	"	20h 21m 46s	+40°35'12"	"	9:55	9:55	40s	—	"	"	"	"	1E 32	"	"	"	ok	Δ2 10 trails } cloud
b	"	"	"	"	"	"	9:57	9:58	1m	—	"	"	"	"	1E 29	"	"	"		bott. Δ2c 20 trails }
563	NGC 224		64B	0 41 23	+41 03	Aug. 2	12:44	13:34	50m	He 45-45	"	"	8	15°30'	2E 07	1-2	"	Mi		p.a 128° 10" Spec nucl
564	NGC 221		"	0 41 23	+40 39	"	13:44	14:34	50m	"	"	"	"	"	1E 07	2	"	"		p.a. 60° 5" Spec nucl
565 a	NGC 7027		63B	21 05 26	+42 04	Aug 3	9:33	9:35	2m	—	4"	7.2	20	7°45'		j-2	"	"		bright knot tracked 250"/h
b	"			"	"		9:37	9:39	"	—						1-2	"	"		diaphr +0m.60 "
N c	"			"	"		9:42	9:44	"	—						1-2	"	"		" +1m.03 "
d	"			"	"		9:45	9:47	"	—						1-2	"	"		" +1m.57 "
e	"			"	"		9:49	9:51	"	—						1-2	"	"		" +2m.03 "
f	"			"	"		9:53	9:55	"	—						1-2	"	"		" +2m.54 "
g	"			"	"		9:57	9:59	"	—					2E 03	1-2	"	"		" +3m.08 "
N N 556 a	NGC 7027			"	"		10:05	10:07	2m	—						"	"	"		" +2m.03 "
b	"			"	"		10:09	10:11	"	—						"	"	"		" +2m.54 "
c	"			"	"		10:12	10:14	"	—						"	"	"		" +3m.08 "
N d	"			"	"		10:16	10:18	"	—						"	"	"		" +3m.52 "
N e	"			"	"		10:19	10:21	"	—						"	"	"		" +4m.04 "
f	"			"	"		10:23	10:25	"	—						"	"	"		" +4m.57 "
N g	"			"	"		10:26	10:28	"	—					1E 34	"	"	"		+5m.10 "

	No.	Object	Mag.	Sp.	R. A.	Dec.	Date 1957	EXPOSURE Beg.	EXPOSURE End	EXPOSURE Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N	N 567 a	NGC 7027			21 05 26	+42 04	Aug 3	10:33	10:35	2m	—	1".4	7.2	20	7°45'		1-2	Eastman 103a-O	Mi		diaph 1".03 bright knot trailed 250 ½
	b	"			"	"	"	10:37	10:39	"	—	"	"	"	"		"	"	"		1".57 "
	c	"			"	"	"	10:41	10:43	"	—	"	"	"	"		"	"	"		2".03 "
	d	"			"	"	"	10:44	10:46	"	—	"	"	"	"		"	"	"		2".54 "
	e	"			"	"	"	10:47	10:49	"	—	"	"	"	"		"	"	"		3".08 "
	f	"			"	"	"	10:51	10:53	"	—	"	"	"	"		"	"	"		3".52 "
	g	"			"	"	"	10:54	10:56	"	—	"	"	"	"	1E06	"	"	"		4".04 "
	568	Cygloop (NGC 6960)			20 44 11	+30° 39' 20"	"	11:56	14:56	180	—	"	"	"	"	3W16	2-3	"	"		3'.66 E .63 N of BD 30° 4116
	569 a	NGC 7027			21 05 26	+42 04	Aug 4	10:51	10:52	1m	—	"	"	"	8°15'						diaph 1".03 bright knot trailed 500 ½
	b	"			"	"	"	10:53	10:54	"	—	"	"	"	"		"	"	"		1".57 "
	c	"			"	"	"	10:56	10:57	"	—	"	"	"	"		"	"	"		2".03 "
	d	"			"	"	"	10:58	10:59	"	—	"	"	"	"		"	"	"		2".54 "
	e	"			"	"	"	11:01	11:02	"	—	"	"	"	"		"	"	"		3".08 "
	f	"			"	"	"	11:03	11:04	"	—	"	"	"	"		"	"	"		3".52 "
	g	"			"	"	"	11:06	11:07	"	—	"	"	"	"	0E51	1	"	"		4".04 "
	570 a	NGC 7027			21 05 26	+42 04	"	11:14	11:15	1m	—	"	"	"	"		"	"	"		diaph 2".03 "
	b	"			"	"	"	11:16	11:17	"	—	"	"	"	"		"	"	"		2".54 "
	c	"			"	"	"	11:18	11:19	"	—	"	"	"	"		"	"	"		3".08 "
	d	"			"	"	"	11:20	11:21	"	—	"	"	"	"		"	"	"		3".52 "
	e	"			"	"	"	11:22	11:23	"	—	"	"	"	"		"	"	"		4".04 "
	f	"			"	"	"	11:24	11:25	"	—	"	"	"	"		"	"	"		4".57 "
	g	"			"	"	"	11:27	11:28	"	—	"	"	"	"	0E30	1	"	"		5".10 "
	571	Cygloop (NGC 6960)			20 44 11	+30 39 20	"	12:48	14:18	90	—	"	"	"	"	2W41	1	"	"		3'.66E .63N of BD 30° 4116
	572	Group of Galaxies	No.1	63B	1 23 24	−1 35 50	Aug. 30	11:25	15:55	270	He 40-40-40	3"S	7.0	0.10	7°30'	1W21	1	Kodak 103a-O	Z	g	NP of pair. NGC 545
	573	" "	" 4	63B	1 22 55	−1 39 55	" 31	10:55	15:30	275	He 40-40-40	3" S	7.0	0.10	7°30'	1W01	2	"	"	"	No 4 of group. " 535
N	574	" "	" 3	"	1 23 08	−1 38 05	Sept. 1	11:30	16:00	270	"	"	"	"	"	1W34	2	"	"	"	No. 3 of group. 541
	575	" "	" 2	"	1 23 16	−1°36' 05"	" 2	11:50	16:00	250	"	"	"	"	"	1W38	2	"	"	Fair	No. 2 of group. NGC 547
	576	LDS 678A	13	63B	19 17 53	−7 45	Sept 17	9:31	9:43	12m	He 30-30	3"	7.0	9	7°30'	2W25	<1	IIa-O 8mm	JG	Fair	W2 F3! Δ2
	577	LDS 678A	13	"	"	"	Sept. 18	10:15	10:45	30	He 60	"	"	9	"	3W32	2	"	"	"	W2 Δ2
	578	LDS 678B	14	"	"	"	"	10:51	11:21	30	He 30-30	"	"	7	"	4W08	2	"	"	"	W2 Δ1
N	579	AC +73° 8031	14	"	21 26 36	+73 25	"	12:02	12:52	50	He 30-30	"	"	7	"	3W31	1	"	"	✓	W5 Δ1
	580	Nova Q Cyg	15	"	21 39 45	+42 37	Sept 19	10 19	11 29	70	"	"	"	7	/	2W00	2	"	"	✓	W5 Δ1
	581	LDS 749B		"	21 29 36	+0° 00	"	11 47	12 47	60	"	"	"	"	"	3W27	2			✓	
N	582	LDS 749A		"	"	"	"	12:55	13:08	1m 46	"	"	"	"	"	3W48	1	"	4	✓	~~Hdy~~ W5 Δ1c,Δ1 scarce Ed
N	583	L 795-13		"	6 23 33	−10 22	"	13:30	13 45	15	"	"	"	"	"	1W31	1	"	"	—	Hdy W5 Δ
	584	Feige XXIII = F 14		"	1 45 36	−6 "	"	14:00	14:25	25	"	"	"	"	"	0W51	1	"	"	—	C1d W5 1
N	585	NGC 507	12.8	119-B	1H 21M 12S	+33°2' 6"	SEP 24	8:23	11:23	180m	NE 90S	3"	6.9	8.6	17°45'	1E30	2-3	IIa-O BKD	O	>>	5970 FILTER. BASE CLOUD 255°.

	No.	Object	Mag.	Sp. GR	R. A.	Dec.	Date 1957	EXPOSURE Beg.	EXPOSURE End	EXPOSURE Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N	N 586.	NGC 720	11.3	119-B	1h50m56s	-13°56'56"	SEP 24	11:47	12:47	60m	Ne90S, He90S	3"	6.9	8.6	17°45'	0E 36	2-3	IIa-O BkD	O	>	5970 FILTER } { BASE 321° } { CLOUDS
	587.	NGC 1052	11.6	"	2h38m56s	-8°26'12"	"	13:05	14:05	60m	NE 90S	"	"	"	"	0E05	2	"	"	OK	" 294° "
	588.	"	"	"	"	"	"	14:17	14:32	15m	"	"	"	"	"	0W22	2	"	"	>	" " "
	589.	NGC 1453	12.8	"	3h44m21s	-4°05'17"	"	14:54	16:24	90m	He90S, Ne90S	"	"	"	"	1W09	2	"	"	>?	" 207° "
N	590.	NGC 7562	12.9	"	23h13m46s	+6°27'11"	SEP 25	7:21	11:51	270m	Ne 90S	"	"	"	"	1W09	2-3	"	"	6h	" 264°
	591.	NGC 1052	11.6	"	2h38m56s	-8°26'12"	"	12:07	16:17	250m	Ne90S, He90S	"	"	"	"	2W11	4	"	"	OK	" 294°
N	592.	NGC 7562	12.9	64-B	23h13m46s	+6°27'11"	SEP 26	7:07	12:07	300m	Ne90S, He60S	"	"	11	14°5'	1W30	4	"	"	OK	264°
	593.	NGC 1052	11.6	119-B	2h38m56s	-8°26'12"	"	12:49	14:49	120m	NE 90S	"	"	8.6	17°45'	0W48	5	"	"	OK	5970 FILTER } 294°
	594.	"	"	"	"	"	"	14:56	15:56	60m	"	"	"	"	"	2W00	5	"	"	OK	" "
	595.	NGC 7027		"	21 05 26	+42 04	Sep 27	7:45	7:46	1m	—	"	"	20	18°30'		3	103a F(3)	M.		diaphr. +2.03 bright knot trailed 300"/h
								7:48	7:49	1m	—	"	"	"	"		"				" 2m.54 "
								7:51	7:52	1m	—	"	"	"	"		"				" 3m.08 "
								7:54	7:55	1m	—	"	"	"	"		"				" 3m.52 "
								7:57	7:58	1m	—	"	"	"	"		"				" 4m.04 "
								8:00	8:01	1m	—	"	"	"	"		"				" 4m.57 "
								8:03	8:04	1m	—	"	"	"	"	OE 21	"	"			" 5m.10 "
	596.	NGC 7027					"	8:50	8:51	1m	—	"	"	"	"		3-4		"		diaphr. +1.57 "
								8:53	8:54	1m	—	"	"	"	"		"		"		" 2.03 "
								8:56	8:57	1m	—	"	"	"	"		"		"		" 2m.59 "
								8:58	8:59	1m	—	"	"	"	"		"		"		" 3m.08 "
								9:01	9:02	1m	—	"	"	"	"		"		"		" 3m.52 "
								9:04	9:05	1m	—	"	"	"	"		"		"		" 4m.84 "
								9:07	9:08	1m	—	"	"	"	"	OW 43	"		"		" 4m.57 "
	597.	NGC 246 Comp. to 598	14.4	64B	0 44 54	-12 09 40	"	10:09	11:39	90m	He45-45	"	"	7	15°30'	OE 26	2-3	IIaO Bkd	"	3m+	p.a. 40° Δ1
	598.	"	"	"	"	"	"	12:33	14:16	103m	"	"	"	"	"	"	2-1	"	"		" ½Δ½
N	599.	NGC 1052		63B	2 38 56	-8 26 12	"	15:08	16:08	60m	He45-45 Ne 2m-2m	"	"	8	7°00'	2W 10	2	"	"		p.a. 294°
	600.	NGC 545/547		"	1 23 20	-1° 36'	Sep 29	11:19	11:49	30m	He15-15	1.4	7.2	15	7°45'	0E 45	1	"	"		p.a. 128.5°
	601.	NGC 1052		"	2 38 56	-8 26 12	"	12:58	13:58	60m	He30-30 Ne30-30	3"	7.0	8	9°00	0W 08	1-2	IIaJ	"		p.a. 294°
	602.	anon gal.		"	2 59 52	-4 51 45	"	14:16	15:46	90m	He15-15	1.4	7.2	15	7°45'	1W 35	1	IIaO Bkd	"		
	603.	NGC 543 ?		"	1 23 18	-1°34' 13"	30. IX.	11:15	5:15	315m	He 40-40-40	3"	7.5	9	7°30'	4W01	1	103a-O	Z	Poor	No. 5 of group.
N	604.	No. 6 group		"	1 22 57	-1°48' 25"	1. X.	8:32	10:02	90m	He 120	3"	7.0	11	"	2E25	1	"	"	"	No. 6 " "
	605.	NGC 543		"	1 23 18	-1°34' 13"	"	11:32	4:32	300m	He 40-40-40	3"	7.0	9	"	4W05	1	"	"	Fair	No. 5 of group.
	606.	T 18		119B	2-32-40	-28°03'	Oct. 2	13:12	19:45	93m	He 30-30	3	7.0	10	17°45	1W09	<1	IIa-Obk	Mü	180	Fog
N	607.	T 21 = NGC 1345		"	3-22-55	-18° 11'	Oct. 8	14:36	16:46	130m	He 30-30	"	"	"	"	2W32	1-2	"	"	180	
N	608.	M33 * #1	17	63B	1h30m15s	+30°23'	Oct. 23	9:25	14:41	316m	He 30-30	3"	7.0	10	7°50'	3W33	1-2	IIa-Obk	Co	Good	½Δ2 
	609.	NGC 2379	14.6	"	7h24m50s	+33°56'	"	15:36	16:36	60m	He 30-30	"	"	"	"	0E25	1-2	"	"	90h	Δ1 nucleus trailed.
N	610.	M33 * Z		"	1h30m17s	+30°20'	Oct 24	7:13	7:31	18m	He 35-35	"	"	"	"	3E33	1	"	"	Good	Δ2

No.	Object	Mag.	Sp. Gr	R. A.	Dec.	Date 1957	EXPOSURE Beg.	EXPOSURE End	EXPOSURE Total	Comp.	Cam.	Cam. Focus	Slit	Tilt	H. A. End	Seeing	Plate	Obs.	Corr. Exp.	REMARKS
N611	M33 * #5	17	63B	1h30m31s	+30°24'	Oct 24	7:56	14:52	326m	He 35s-35s	3"	7.0	10	7°50'	3W50	1	IIaO Blu	Co	Ok	Closed by Clouds 11:40-13:10 ½Δ2.
N612	NGC 2683	(10.5)	"	8h50m6s	+33°35'	"	15:40	16:40	60m	"	"	"	"	"	1E43	1	"	"	90m	Δ2 nucleus trailed.
N613	NGC 221	-	119-B	0h40m50s	+40°37'48"	Oct 25	6:54	7:09	15m	He 90s, A 3m	3"	7.0	8.6	18°00'	3E01	3	IIa-J B&D	O	OK	BASE 180° WRAT. 3 FILTER
614	"		"	"	"	"	7:21	8:21	60m	"	"	"	"	"	1E49	2	"	"	15m	" "
615	NGC 1052	11.6	"	2h38m56s	-8°26'12"	"	8:49	10:49	120m	He 1m, A 2m	"	"	"	"	1E20	3	"	"	OK	294° "
616	"	"	"	"	"	"	11:00	11:25	25m	"	"	"	"	"	0E46	3	"	"	2h	" " STOPPED BY CLOUDS
617	"	"	"	"	"	Oct 27	8:16	10:43	147m	"	"	"	"	"	1E18	1-2	"	"		" " "
618	NGC 1052		63B	2 38 56	-8°26 12	Nov 24	8:47	9:47	60m	He 30-30 A 30-30	"	6.9	8	9°00	0E24	<1-1	IIaJ	Mi		p.a. 294°
619	NGC 1417		"	3 39 50	-4 51 24	"	12:42	13:42	60m	He 15-15	1.4	7.2	15	7°50	2W31	1	IIa Blu	"		p.a. 5° comprising nucleus and unresolved
620	NGC 1614		"	4 31 57	-8 40 06	"	14:08	14:38	30m	"	"	"	"	"	2W35	1	"	"		
621	anon. gal		"	9 18 21	+46 04 23	"	15:12	15:42	30m	"	"	"	"	"	1E07	1	"	"		
622	anon. gal.		"	0 51 51	-3° 42	Nov 25	7:29	11:29	240m	"	"	"	"	"	3W09	4-3	"	"		p.a. 167.8°
623	NGC 1275		64B	3 16 59	+41 21 22	"	11:58	14:58	180m	He 45-45	3"	6.9	8	14°00	4W14	3	"	"	2h	p.a 93° nucleus slightly widened
624	NGC 1365		63B	3 38 48	-36° 18'	" 26	10:06	11:36	90m	He 2-2 He 60-60	3"	6.9	9	7°30'	0W40	1	103a-O	Z	OK.	[Supernova in nebula]
625	M1 Central Stars	(1950)	"	5 31 33	+21° 58'55"	" 26	1:30-3:30	3:30	110m	"	"	"	9	"	2W31	1	"	Z	OK	Base 214
626	Supernova		"	3 31 25	-36° 15'25"	" 27	10:00	12:00	120m	"	"	7.0	8	"	1W09	1	"	"	weak	NGC 1365 ..o. .Su Base 314
627	M1 Central			5 31 33	+21 5855	" 27	1:58	3:28	90m	"	"	"	8	"	2W37	2-3	"	"	O.K.	Base 214
N628a	M15 (K648)	Pc	119-B	21h27m54s	+11°58'48"	Dec 13	6:49	7:50	61m	He 1m NE 2m	3"	6.9	8.6	17°45'	4W06	2-3	IIa-O B&D	O	120m	5970 FILTER. END OF SLIT (ΔΣ COMP WAVE)
b	T TAU NEBULA	PB		4h19m28s	+19°26'13"	"	8:55	10:25	90m		"	"	"	"	0E11	3			180m	" .3"05 OF STAR.
N629	M1 Central		63B	5-31-33	+21°58'55"	Dec. 18	10:53	2:53	240m	He 40-40-40	"	7.0	11	7°15'	3W25	2	IIa-O	Z	weak	Base 180°
630	No. 6 of group		"	1-22-52	-9°46'16"	" 19	6:34	10:34	240	"	"	"	9	7°30'	3W21	2	103a-O	Z	Fair	" 180°
631	Double Galaxy		"	9-55-48	+29° 6' 40"	" 19	10 0:50	4:50	240	"	"	"	10	"	1W12	2-3	"	"	"	" 228.5°

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1958	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N632	O	NGC 1052	2h38m54s	-8°27'57"	E3		JAN 11	7:07	8:08	61m		2-3	He	45s,2m	—	—	8	63-B 7°00'	3"	6.9	IIa-O BKD	1W06	Δ1. PA 294°. OCNL CIRRUS
633	"	"	"	"	"		"	8:22	9:22	60m		2	Ne	2m,2m	—	—	"	"	"	"	"	2W21	" " "
634	"	"	"	"	"		"	11:15	12:15	60m		1	He	30s,30s	—	—	"	63-B 9°00'	"	"	IIa-J BKD	4W14	" " "
635	"	NGC 4151	12h08m24s	+39°38'20"	Sa		"	13:21	14:50	89m	LL	2	A	90s	60W, DIA 10, 15m		12.5	64-B 11°15'	"	12.6	103a-F(3)	1E37	Δ1 TRAILED. " " CC1 FILTER
636	"	"	"	"	"		"	15:17	15:57	40m		2	"	"	100W, DIA 16, 10m		"	"	"	"	"	0E30	" " " "
637a	"	"	"	"	"		"	16:32	17:18	46m	OK	2	A	40s	300W, DIA 16, 10m		"	"	"	"	"	0W49	Δ2 (COMP) TRAILED, "
637b	"	"	"	"	"		"	17:19	17:33	14m		2					"	"	"	"		1W05	" " " "
638a	"	T TAU NEB.	4h19m31s	19°26'21"		Pec	JAN 12	6:39	9:28	169m	OK	1-2	A	60s	PF, DIA 2, 25m		8.6	114-B 17°45'	"	"	IIa O BKD	0W50	Δ2 (COMP) TRAILED. 5470 FILTER. 3"5 OF STAR
638b	"	HERBIG No 1	5h34m23s	-6°44'17"		P	"	9:55	12:55	180m	OK	1-2			PF, DIA 10, 4m		"	"	"	"		3W09	Δ2 (STAR) " " "
639a	"	NGC 4151	12h08m24s	+39°38'20"	Sa		"	13:31	14:32	61m		1-2	A	60s			"	"	"	"	"	1E53	Δ2 (COMP) " " "
639b	"	"	"	"	"		"	14:34	15:00	21m	30m	1-2					"	"	"	"		1E25	" " " " "
640a	"	"	"	"	"		"	15:25	16:15	50m		1-2	A	60s	PF, DIA 4, 9m		"	"	"	"	"	0E10	" " " " "
640b	"	"	"	"	"		"	16:27	16:54	27m		2					"	"	"	"		0E50	" " " " "
N641a	Co	θ' Ori (C)	5h33m12s	-5°24'57"	5.6	O7	Jan 16	7:36	7:38	100s	OK	1-2	—	—	100W Dia 40 90m		10.0	63-B 7°50'	3"	7.0	IIa O BKD	1E58	Δ2 4 mag Screen 1 trail.
641b	"	"	"	"	"	"	"	7:38	7:43	200s		1-2	—	—	" "		"	"	"	"	"		Δ2 E W " 2 trails
641c	"	θ' Ori (A)	"	"	6.0	"	"	7:45	7:50	5m	OK	1-2	—	—	" "		"	"	"	"	"	1E46	Δ2 C E " 3 trails,
642	"	NGC 1976	"	"		Neb, (AF)	"	8:07	8:49	42m	OK	2	A	60s	" "		"	"	"	"	"	0E47	Neb, Trap Ham N θ'(c) Slit E W, Clouds!
643	"	NGC 2903	9h29m45s	+21°42'	10.3	Sb	"	12:32	15:20	168m	200m	1-2	A	60s	" "		"	"	"	"	"	1W48	Nucleus Trailed Δ2, Heavy clouds about 13:40,
N644	"	θ' Ori (C)	5h33m12s	-5°24'57"	5.6	O7	Jan 17	8:42	8:44	100s	OK	1-2-3	He	60s	100W Dia 40 90m		10.0	63-B 7°50'	3"	7.0	IIa O BKD	0E49	Δ2 4.0 mag screen 1 trail.
645	"	NGC 1600	4h29m36s	-5°09'	E 12.7	Neb	"	9:00	11:00	120m	200m	2	He	60s	" "		"	"	"	"	"	2W31	½Δ2 Slit E/W nucleus trailed along mmmmm.
646	"	NGC 3115	10h03m12s	-7°30'28"	E7 9.8	Neb (SK)	"	11:19	13:57	158m	OK	2	He	60s	" "		"	"	"	"	"	0E04	Δ2 Slit E/W nucl. trailed Δ3 window used.
647	"	NGC 4278	12h17m58s	+29°32'45"	E 11.6	Neb	"	14:23	16:53	150m	OK	2	He+H	60+10	" "		"	"	"	"	"	0W37	½Δ2 Slit E/W nucl. trailed.
N648	Q	η Psc	1h29m14s	+15°7'48"	4.7	G8III	Jan 18	7:13	7:15	100s	OK	1-2	—	—	100W Dia 40 90m		10.0	63-B 7°30'	3"	7.0	IIa O BKD	1W51	Δ2 4 mag Screen 1 trails
648b	"	"	"	"	"	"	"	7:16	7:20	4m	9 min for UV	"	—	—	" "		"	"	"	"	"	1W55	Δ2 C E " " 2 "
648c	"	"	"	"	"	"	"	7:20	7:26	6m		"	—	—	" "		"	"	"	"	"	2W01	Δ2 C W " " 3 "
649	"	μ Cas	1h05m24s	+54°43'	5,8	dG5	"	7:38	7:44	6m	OK	1-2	He	60s	" "		"	"	"	"	"	2W49	Δ2 2 trails 4 mag Screen
650a	"	ε Ori	5h34m2s	-1°14'	1.5	BoIa	"	7:59	8:00	1m		1-2	—	—	" "		"	"	"	"	"	1E29	Δ2 10 fast trails 4 mag Screen 100 "Aquadag"
650b	"	"	"	"	"	"	"	8:01	—	200s	400s	"	—	—	" "		"	"	"	"	"	—	Δ2 C E 15" " " " " "
650c	"	"	"	"	"	"	"	—	8:03	150s		"	—	—	" "		"	"	"	"	"	1E26	Δ2 C W 20 " " " " " "
651a	"	δ Lep	5h49m28s	-20°53'	5.0	G8III	"	8:14	8:16	105s	OK	1	—	—	" "		"	"	"	"	"	1E30	Δ2 1 trail 105s 4 mag screen
651b	"	"	"	"	"	"	"	8:16	8:21	280s	Tried for UV	1	—	—	" "		"	"	"	"	"	1E25	Δ2 C E 2 trails " " " "
651c	"	"	"	"	"	"	"	8:21	8:27	365s		"	—	—	" "		"	"	"	"	"	1E17	Δ2 C W 3 " " " " " "
652	"	NGC 1700	4h54m48s	-4°55'18"	E 12.4	Neb	"	8:53	10:55	122m	Good	<1	—	—	" "		"	"	"	"	"	2W05	½Δ2 nucl. trailed Clouds at end.
653	"	NGC 4486	12h28m23s	+12°38'	E 14.2	Neb	"	15:03	17:03	120m	OK	2	He	60s	" "		"	"	"	"	"	0W42	Δ2 nucl. trailed.
N654	"	NGC 2379	7h24m43s	+33°54'	E 15	Neb	Jan 19	7:17	14:21	424m	600m	1	He	60s	100W Dia 40 90m		10.0	63-B 7°30'	3"	7.0	IIa O BKD	3W06	½Δ2 nucl. trailed sky reading 5.5
655	"	NGC 4406	12h24m6s	+13°11'	E 11	Neb	"	14:36	16:36	120m	OK	1	He	60s	" "		"	"	"	"	"	0W20	Δ2 nucl. trailed clouds last half.
656	Z	Tombaugh galaxy	9 55 48	+29 6 40	-	Neb	20. I	9:12	11:30	78m	<	1-2	He	120s	-	—	10.0	63-B 7°30'	3"	7.0	IIa-O BKD	2E13	Focus poor. Clouds. Tintagel Bridge
657	Z	" "	11 8 31	+28 58 15	-	"	"	2:31	5:00	64m	<	1-2	"	"	-	—	"	"	"	"	103a-O	2W06	—
658	"	" "	9 55 48	+29 6 40		"	21. I	10.0.	4.41	361	OK	1-2	"	"	-	—	"	"	"	"	"	3W04	sky meter reading zenith .48
659	"	NGC 1326	3 22 05	-36 35 10	11.3		22 I	6:56	8:26	90m	"	1	"	"			"	"	"	"	"	1W25	

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1958	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N660	Z	Double galaxy	11 8 31	+28° 58' 15"		Neb	22 : I	2 15	5 15	360m	O.K	2-3					10	63 B 7° 3.1	34	7.0	103a-O	2W24	Extragalactic Matter
661	Mi	NGC 1052	2 39 00	-8° 27' 57"			Jan 23/24	0:36	8:06	90m		1	He A	30-30 30-30			8	63 B 9° 00'	"	6.9	IIaJ	1W52	pa 294°
662		"	"	"			"	8:30	10:00	90m		1-<1	"	"			4	"	"	"	"	3W46	" comp lines double!
663	Mi	NGC 4472	12 27 39	+8° 13 48			Feb 20/21	10:37	16:37	340m		<1-2	A	40-40	2h		8	c4 B 14° 50'	"	6.75	IIaO bkd	2W15	pa 90°. Lost 20m to clouds; occasional thin clouds
664		NGC 1275	3 17 01	+41 21 46			Feb 21/22	7:07	8.44	97m		3	He Ne	45-45 2m-2m	2h		8	64 B 14° 00'	"	"	"	3W45	pa 90°, traces 3/6 Bl. nucleus
665		NGC 3115	10 03 09	-7 30 30			"	9:25	14:25	300m		2-3	A Na	45-45 45-45			8	64 B 15° 00	"	"	"	2W42	pa 45°
666		anon. gal.	12 28 24	+12 43 24			"	14:57	16:57	120m		2-3	"	"			8	"	"	"	"	1W49	
667	Mw	NGC sf 2-3	9-52-26	+69° 09'.0	HII reg.		Feb 22/23	8 44	10 14	90m		1-2	Ne	5"-5"			9	119 B 18° 0'	3"	6.9	103a-F3	1E14	pa 30°, 1°, A filter, clouds
668	"	M81 sf 1	9-52-31	+69° 08'.4	"		"	10:16	17 16	60m		1	"	"			-	"	"	"	-	5W48	pa 90° "
669	"	" sf 5	9-51-56	+69° 07'	"		22/24	8:05	10:35	150m		2	"	"			-	"	"	6.75	"	6E49	pa 40°.9 uv filter,
670	"	" nucleus	9-52-11	+69° 13' 5"		Sb	"	10:57	12:13	60m	✓	2-3	A Ne	2-2m ½-1½	100w # 10 50m		9	119 B 17° 0'	"	"	103a-J	6W48	pa 317° Aircel filter
671	"	" np 4	9-51-36	+69° 22'.5	HII reg		"	12:34	14:50	136m	✓	2	Ne	5"-5"			9	119 B 18° 0'	"	"	103a-F3	3W27	pa 3°.5 uv filter
672	"	" np 3	9-51-38	+69° 20'.3	"		"	15 05	17:15	135m	✓	2-1	Ne	5"-5"			"	"	"	"	"	5W52	pa 350°
673	"	" np 9-10	9-51-20	+69° 14'	"		24/27	7 29	9:56	150	"	1	"	"			8	"	"	"	103a-E2	1E19	pa 114°.3 CCI
674	"	" np 11-13	9-51-16	+69° 16'	"		"	10:17	13 a	163		1	"	"			8	"	"	"	"	1W49	" 116° "
675	"	" nucleus	9-51-10	+69° 13'	"		"	13:20	15:35	135m	✓	1	Ne He A	4m+4m ½+½ 3+3	10w # 10 60m		8	18° 45'	"	6.85	103a-J	4W49	Aircel filter.
676	Mi	NGC 3115	10 03 09	-7° 30' 30"			Mar 14/15	7:43	9:45	102		<1-2	He	15-15			15	63 B 7° 30'	1.4	6.85	IIaO bkd	0E37	pa 45° 70" S spec nucleus. Lost 30m clouds
N 677	O	NGC 4278	12H 18M 06S	+29° 31' 20"	11.2	E1	MAR 18/19	8:16	9:16	60M	OK	3	NE A	1m+1m 1m+1m	100w BLUE, DIA 16, 60m		8.7	#119-B 17° 45'	3"	6.8	IIaO BKD	3E02	PA 198° 5970 FILTER. HE IN Δ3C
678	"	"	"	"	"	"	"	9:35	10:31	60M	"	3	"	"			4	"	"	"	"	1E39	PA 288° " , 4M OUT TO CHANGE
679	"	"	"	"	"	"	"	10,55	16:35	340	OK	3-4	"	"	100w BLUE, DIA 4, 240m		"	"	"	"	"	4W17	PA 198° "
N 680	"	"	"	"	"	"	MAR 19/20	7:30	14:15	260M		2-3	NE A	1m+1m 1m+1m	100w BLUE, DIA 2, 240m		"	"	"	"	"	2W03	" 288°, " STOPPED 155M FOR CLOUDS, STOPPED FINALLY BY CLOUDS
681	Z	Double galaxy	11-8-31	+28° 58' 15"		comp-acte	Apr 11/12	8:01	8:31	30m	weak	2-3	NE	3+3+3			9	64 B 11° 15'	3"	6.8	103a-E	3W56	Base 355.5 K3 Filter.
682	"	" "	"	"			" 12/13	7:40	2:15	345m	OK	1-2	NE	2m+2m					"	"	"	4W44	" "
683	"	" "	12-23-58	+9° 18' 0"			" 13/14	9:21	11:05	1.4h	weak	3	He	40-80			"	63 B 7° 30' 63 B 1° 15'	"	"	IIa-O baked	2W21	Base 280° stopped because of clouds
684	Mi	NGC 3115	10 03 09	-7 30 30			Apr 14/15	7:56	9:41	105m		1-2	He	15-15			15		1.4	6.75	IIaO bkd	1W22	pa 45° 70" N foll. nucleus
685	"	"	"	"			"	10:04	10:49	45m		2-3	"	"			"	"	"	"	"	2W30	pa 45° 35" N foll. nucleus
686	"	anon. gal.	16 26 57	+39 39 50			"	11:53	12:53	60m		2-3	"	"			"	"	"	"	"	1E49	
687	"	"	16 27 13	+39 36 45			"	13:21	14:21	60m		1-2	"	"			"	"	"	"	"	0E22	
688	"	"	16 27 20	+39 33 30			"	14:55	15:40	45m		2	"	"			"	"	"	"	"	0W58	
N 689	O	NGC 4278	12H 18M 06S	+29° 31' 20"	11.2	E1	APR 20	7:54	9:07	73m	20m	2-3	HE	150s	100w BLUE, DIA 16, 60m		12	63-B 6° 45'	3"	6.8	IIa-O BKD	0E53	288°.5 TRAILED Δ2
690	"	NGC 4125	12H 08M 00S	+65° 24' 19"	10.9	E6	"	10:17	11:17	60M		2-3	A	45s	100w BL, DIA 16, 50m		"	"	"	"	"	1W49	90°.0 "
691a	"	NGC 4278	12H 18M 06S	+29° 31' 20"	11.2	E1	"	11:35	12:08	33M		2	HE	150s	PF, DIA 10, 2½m		"	"	"	"	"	1W54	73°.0 " Δ2C
691b	"	"	"	"	"	"	"	12.10	12:26	16M	OK	2					"	"	"	"	"	2W16	73°.0 " Δ2C
692	"	"	"	"	"	"	"	14:01	14:18	17M		2	HE	60s	PF, DIA 10, 2 1/2m		"	"	"	"	"	4W08	69°.0 " Δ2
693	"	"	"	"	"	"	"	14:25	14:42	"		2	HE	150s	PF, DIA 10, 3½m		"	"	"	"	"	4W32	69°.0 " Δ2
694a	"	HD 195592	20H 29M 08S	+44° 10' 22"	6.9	09.5	"	15:18		75		3	-				"	"	"	"	"		90°.0 " Δ2C 2 TRAILS, 2.0 NAG
b	"	"	"	"	"	"	"			105		3	-				"	"	"	"	"		90°.0 " Δ 3 SCREEN
c	"	"	"	"	"	"	"		15:21	145		3	-				"	"	"	"	"	3E00	90°.0 " Δ2C 4
695a	"	"	"	"	"	"	"	15:26		145		3	HE	60s			"	"	"	"	"		90°.0 " Δ2C 4 "
b	"	"	"	"	"	"	"			215		3	"				"	"	"	"	"		90°.0 " Δ2 6 "

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1958	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 695c	O	HD 195592	$20^h 24^m 08^s$	+44°10'22"	6.9	09.5	APR 20		15:30	3^s		3	HE	60^s	SAME	CALIB	12	63-B 6°45'	3"	68	IIa-O BKD	$2^E 50$	BASE
696a	"	HD 169454	$18^h 22^m 52^s$	-14°00'10"	6.6	B1	"	15.47	15:5	6^s		2			AS								90.0 TRAILED Δ2c 9 TRAILS, 2 MAG SCREEN
b	"	"	"	"	"	"	"			10^s		2	A	45^s	N692-694								0°.0 " Δ2c
c	"	"	"	"	"	"	"		15:50	13^s		2											" " Δ2 "
697a	"	"	"	"	"	"	"	15:58		12^s		2										$0^E 34$	" " Δ2c "
b	"	"	"	"	"	"	"			18^s		2	A	45^s									" " Δ2c "
c	"	"	"	"	"	"	"		16:06	30^s		2											" " Δ2 "
N 698	O	NGC 4278	$12^h 18^m 06^s$	+29°31'20"	E1		APR 21	7:50	8:50	60^m	75^m	1-2	HE	60^s	PF, DIA 4, 10^m		12	63-B 8°30'	3"	6.8	IIa-J BKD	$0^E 15$	" " Δ2c
699	"	NGC 3379	$10^h 45^m 37^s$	+12°48'28"	E0	10.5	"	9:10	9:54	44^m	OK	2	A	60^s			12	"	"	"	"	$1^E 16$	288°. TRAILED Δ2
700	"	"	"	"	10.5	E0	"	11:01	11:41	40^m		2-3	A	60^s	PF, DIA 10, 10^m		"	"	"	"	"	$1^W 22$	216°. " Δ2
701	"	NGC 4278	$12^h 18^m 06^s$	+29°31'20"	10.2	E1	"	11:59	13:08	69^m	OK	2	HE	60^s	PF, DIA 4, 22^m		"	"	"	"	"	$2^W 08$	235° " Δ2
702a	"	HD 195572	$20^h 24^m 08^s$	+44°10'22"	6.9	09.5	"	15:00	15:03	2^{m}40^s		2					"	63-B 6°45'	"	"	IIa-O BKD	$3^E 14$	$3^W 02$ 254° " Δ2
b	"	"	"	"	"	"	"	15:04	15:09	4^{m}37^s	4^m	"	HE	3^m			"	"	"	"	"	$3^E 14$	270° " Δ2c, 3.52 MAG SCREEN
c	"	"	"	"	"	"	"	15:10	15:17	7^{m}22^s		"			PF, DIA 10, 2½^m		"	"	"	"	"	$3^E 08$	" " Δ2 "
703a	"	"	"	"	"	"	"	15:27	15:29	2^{m}15^s		"			PF, DIA 10, 3½^m		"	"	"	"	"	$2^E 59$	" " Δ2c "
b	"	"	"	"	"	"	"	15:30	15:34	9^{m}23^s	4^m	"	—				"	"	"	"	"	$2^E 47$	" " Δ2c "
c	"	"	"	"	"	"	"	15:41	15:46	4^{m}44^s		"					"	"	"	"	"	$2^E 38$	" " Δ2 "
704a	"	HD 169454	$18^h 22^m 52^s$	-14°00'10"	6.6	B1	"	15:57	16:02	5^{m}20^s		"					"	"	"	"	"	$2^E 33$	" " Δ2c "
b	"	"	"	"	"	"	"	16.03	16.05	1^{m}55^s	3^m	"	A	5^m			"	"	"	"	"	$0^E 08$	180.° " Δ2c "
c	"	"	"	"	"	"	"	16:06	16.10	4^{m}04^s		"					"	"	"	"	"	$0^E 05$	" " Δ2 "
N 705	O	NGC 4278	$12^h 18^m 06^s$	+29°31'20"	11.2	E1	APR 22	7:50	9:00	70^m	100^m	1	NE	15^s	PF, DIA 10, 12^m		12	64-B 11°35'	3"	6.8	103a-F(3). 09 FILTER	$0^E 00$	" " Δ2c
706	"	NGC 3379	$10^h 45^m 37^s$	+12°48'28"	10.5	E0	"	9:14	10:04	50^m		1	HE	30^s			"	"	"	"	" "	$1^E 03$	288°. TRAILED Δ2
707	"	"	"	"	"	"	"	10:16	11:30	74^m		1	NE	90^s	PF, DIA 10, 12^m		"	"	"	"	" "	$1^W 54$	216° " "
708	"	NGC 4278	$12^h 18^m 06^s$	+29°31'20"	11.2	E1	"	11:46	12:58	72^m		1	HE	90^s			"	"	"	"	" "	$3^W 01$	230° " "
N 709	O	NGC 4278	$12^h 18^m 06^s$	+29°31'20"	11.2	E1	APR 23	11 41	14.01	140^m	OK	1	NE	15^s	PF, DIA 10, 10^m		12	64B 11°35'	3"	6.8	103a-F(3) 09 FILTER	$2^W 36$	254°. " ", STOPPED BY FOG
N 710	O	NGC 3585	$11^h 11^m 17^s$	-26°31'37"	11.0	E6	APR 24	7:47	9:13	86^m	OK	1-2	A	45^s	PF, DIA 4, 7½^m		12	63-B 6°45'	3"	6.65	IIa-O BKD	$4^W 03$	<54°. TRAILED Δc LAST HR THIN CLOUDS
711	"	NGC 3377	$10^h 45^m 31^s$	+14°12'28"	11.3	E6	"	9:26	10.51	85^m		2	A	45^s	PF, DIA 4, 10^m		"	"	"	"	"	$0^W 25$	169° " Δ2
712	"	NGC 4584	$12^h 35^m 50^s$	+74°25'22"	12.0	E1	"	11:12	14.02	170^m		2	A	45^s			"	"	"	"	"	$2^W 30$	<24° " Δ2
713	"	NGC 5322	$13^h 47^m 52^s$	+60°23'36"	11.0	E4	"	14:23	15.20	57^m		2	ME	30^s	PF, DIA 4, 16^m		"	"	"	"	"	$2^W 51$	132° " Δ2
714	Kw	M31 nucleus	$0^h 52^m 11^s$	+41°13'	5.0		Aug 1/7	7:51	9 51	120"	✓	1-2	A	45^s	90", 10, 10"		9	144B 11°45'	"	6.65	IIa-c bkd	$3^W 56$	97° " Δ2.
715	"	M31 nucleus	"	"	"	"	"	10:20	12 20	120	240	1	Ne	5+5			"	"	"	"	113a-F	$5^W 10$	317° Acc 097a filt.
716	JLG	Hz 22	12 12 16	+36 55 30	B2 13	B2	Aug 8	8:36	9:15	34	✓	2	Ne	30+30	W2 70"		9	63D 7°50	3"	6.65	IIa-O BKD	$5^W 54$	55° " clouds
717	"	Hz 40	13 11 11	+37 13 48	4DAb	DAb	"	9:37	10:18	41	✓	2	"	"	"		11	"	"	"	"	$0^W 22$	Δ2 clds
718a	"	Tonantzintla 1996	14 24 42	+33 11	15	K?	"	10 44	11 A	30	90	2	"	"	"		11	"	"	"	"	$0^W 26$	Δ1 clds
718b		" 1994	"	"	13	DAb		1122	1142	20	✓	2	"	"	"		11	"	"	"	"	$0^W 13$	Δ1 Identity doubtful-Ft. comp. of clds
719	"	Hz 44	13 21 18	+36 18	11	sdO	"	11 56	1202	6	✓	1	"	"	"		11	"	"	"	"	$0^W 36$	Δ1 ≤ window Brt * of 12" double
720	JLG	Hz 22	12 12 16	+36 55	13	B2	Aug 9	8 59	9 29	30	✓	1	"	"	W1		8	"	"	"	"	$2^W 00$	Δ2 Clds
721	"	Hz 20	12 10 12	+42 57	15	DAp	"	9 48	10 56	68	✓	1	"	"	"		8	"	"	"	"	$0^W 40$	Δ2 Sky very brite
722	"	Hz 34	12 53 00	+37 49	15	DAp?	"	11 05	11 53	45	80	1	"	"	"		8	"	"	"	"	$2^W 09$	Δ1 " " "
723	"	Tom 1994	14 24 42	+33 11	13	DAb	"	12 03	12 23	20	✓	1	"	"	"		8	"	"	"	"	$2^W 24$	Δ1 " " "
724	"	Eclipse 50	13 17 42	+12 20	11	Gb	"	12 31	12 42	7	✓	1	"	"	"		7	"	"	"	"	$1^W 22$	Δ1
																						$2^W 47$	Δ2 Some Moon

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1958	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N725	JLG	HZ 22	12 12 16	+36° 56	13	B3	June 7	8:51	9:21	30	V	1	Hk	60	W2	50m	7	63B 7°50'	3"	6.65	IIaO BuH	2ω26	sky bright
T26	"	HZ 34	12 53 00	+37 49	15.5	Op	"	9:40	11:15	95	120	1	He	30-30	"		9	"	"	"	"	3ω39	" "
N 727	Mi	anon. gal.	16 27 10	+39 37.3			June 18	9:10	10:25	75	-	1	He	15-15			15	63B 7°45'	1.4	6.75	IIaO brk.	OE01	sky very bright
728	"	"	16 27 27	+39 38.9			"	11:12	14:12	180		1-<1	"	"			"	"	"	"	"	3W44	" " "
729	"	"	16 27 04	+39 36.6			June 19	8:53	9:53	60		1	"	"			"	"	"	"	"	OE30	
730	"	NGC 6166c	16 27 11	+39 38.5			"	10:29	12:29	120		2-3	"	"			"	"	"	"	"	2W07	p.a. 43°
730	"	"	16 27 21	+39 42.5			"	12:58	14:28	90		1-2	"	"			"	"	"	"	"	4W06	sky bright
732	"	anon. gal.	16 27 18	+39 33.5			June 20	8:49	9:34	45		2	"	"			"	"	"	"	"	OE52	
733	"	anon. gal.	16 27 19	+39 37.0			"	10:01	11:01	60		2	"	"			"	"	"	"	"	0W42	
734	"	anon. gal.	16 27 07	+39 38.1			"	11:24	12:54	90		1-3	"	"			"	"	"	"	"	2W36	
735	"	anon. gal.	16 27 17	+39 36.0			"	13:16	14:16	60		2	"	"			"	"	"	"	"	3W58	
N736	JLG	DQ Her	18 06 05	+45 51	14.2	Nova	July 21	10:30	11:08	28	✓	2	He	60	W3	70m	8	63B 7°50'	3"	6.65	IIaO BuH	1ω13	All widened fully. No moon Δ1
737	"	"	"	"	"	"	"	11:13	11:46	33	✓	2	"	"	"		"	"	"	"	"	1ω51	
738	"	"	"	"	"	"	"	11:57	12:27	30	✓	2	"	"	"		"	"	"	"	"	2ω32	
739	"	"	"	"	"	"	"	12:37	13:09	35	✓	2	"	"	"		"	"	"	"	"	3ω14	
740	"	"	"	"	15.0	"	"	13:13	14:16	63	✓	2	"	30-30	"		"	"	"	"	"	4ω41	Minimum about 13:45
741	"	"	"	"	14.2	"	"	14:29	15:14	45	✓	1	"	60	"		"	"	"	"	"	5ω19	
N742	JLG	DQ Her	18-06-05	+45 51	14.2	Nova	July 22	10:35	11:05	30	✓	2	He	60	W3		8	63B 7°50'	3"	6.65	IIaO BuH	1ω14	Some moon Δ1
743	"	"	"	"	"	"	"	11:10	11:41	31	✓	2	"	"	"		"	"	"	"	"	1ω30	No moon
744	"	"	"	"	"	"	"	11:48	12:19	31	✓	2	"	"	"		"	"	"	"	"	2ω08	(V is minimum
745	"	"	"	"	215	"	"	12:24	13:34	10,10,20 10,10,5	✓	2	"	"	"		"	"	"	"	"	3ω43	12:20 Δ2 12:34 12:44 13:01 13:18 13:28 12:37 12:47 13:04 13:17 13:28 (13:04 Δ1 min 13:54 2x)
746	"	LDS 749B	21 29 36	+0° 00	14.2	DB	"	13 52	15 06	74	✓	3	"	90	"		6	"	"	"	"	1ω33	Δ1 widened about 4" each
747	"	LDS 749A	21 29 36	+0° 00	11	dM	"	15:16	15:30	1m-3m	(2½m)	3	"	90	"		6	"	"	"	"	2ω15	several exposures 1, 2, etc
N748	JLG	DQ Her	18 06 05	+45 51	14.2	Nova	July 23	11 50	12 00	10		2	He	45-45	W3		8	"	"	"	IIaO 2Buh		Attempt to follow during eclipse.
b		"						12 00	12 10	10		2											Δ2 Eclipse started
c		"						12 11	12 31	20		2											Eclipse max. near beginning
d		"						12 31	12 41	10		2											Nearly completely out of eclipse
e		"						12 41	12 51	10		2											
f		"						12 51	12 56	5		2											The comp. windows
749	"	L 710-30	20 07 18	−21 55	14.4	DA	"	13 13	14 13	60		2		60	W3		8				"	3ω09	~~for comp. windows~~ Δ1
750	"	L 1363-3	21 40 17	+20 45	13.3	DC	"	14 42	15 22	40		3		60	"		8				"	2ω41	Δ2
N751	JLG	DQ Her	18 06 05	+45 51	14.2	Nova	July 24	10:43	11:04		✓	3	He A	60 10	W3		10	"	A	"	"		Sect. middle of Δ1c, 35"/hour rate Moon very bright Set to Δ1 " Windows covered with tape Eclipse bottom Δ1 10"/hr rate Lower Δ1c 35"/hr rate
								11:04	11:13		✓	4											
								11:13	11:37		X3	4											
								11 39	12 04		✓												
								12 04	12 09		✓											2ω26	cut bottom of Δ1c
N752	"	Nova Cyg 1920	1957 06	+53 29	16½		"	12 43	15 20	157	200	3			W3		10	"	"	"	"	3ω46	½ of Δ1 No moon
N753	Mw	B> 259-8	22:45:51	+37°40'10"	12.5?	sd O O3B	Aug 26/27	15:40	16:17	37m	✓	3-4	A	2min			7	64B 15°10'	3"	6.65	IIa-O	4ω09	Δ2½ Hz44 sd O type!
N754	Mi	Cas A	23:21 34	+58 34 44			Sep 12/13	8:06	10:06	480m		<1-2	Ne	2-2				119 B 15° 30'	1.4	6.75	103a F(3)	4W28	p.a. 82.8 93" NW of 1958 center
N755	"	"	"	"			Sep 13/14	1:55	14 35	300m		3-4	"	"				13 15'		6.80	"	3W01	p.a. 81.9 93" NW of 1958 center Lost 1 "10", Smoke and ashes!

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 756	Mi	Cas A	23 21 34	+58 37 44			Sep 14/15	7:52	13.30	338m		3-4	Ne	2-2			15	11gB 18°15'	1.4	6.85	103a F-3	2W00	p.a. 316° 14" pos, 103"N of HSR center
757	"	"	"	"													"	"	"	"	"	4W27	p.a 135° 14"pos 88"N of HSR center.
758	Z	No. 8 Group galaxies	1 22 45	-1°46' 00"			Sept. 19/20	9:35	11.05	90m		1	Hezlit	5e+50			9	6 3 B 1 30	3"	6.85	103a-O	2E17	Moon Base 180
759	"	" 5 " "	1 23 22	-1°33' 40"			"	12:19	4:09	230m		1	"	40+40+40			"	"	"	"	"	3W02	" " 180 [NGC 543 ?]
760	"	" 7 " "	1 22 56	-1°45' 00"			Sept. 24/4	9:07	11.07	120m		1-2	"	60+60			"	"	"	"	"	2E06	Moon Base 180
761	"	" 9 " "	1 23 17	-1°35' 30"			"	12:29	4:24	235m		2	"	40+40+40			"	"	"	"	"	3W12	—— ? NGC 543 ? Base 180
762	"	" 12 " "	1 23 13	-1°43' 05"			Sept. 21/22	9:16	10:31	75m		2	"	60+60			"	"	"	"	"	2E38	Moon Base 180
763	"	" 11 NGC 548	1 23 35	-1°29' 00"			"	12:30	4:25	235m		1-2	"	40+40+40			"	"	"	"	"	2W58	Base 180
764	"	" 13 group of	1 22 38	-1°51' 10"			Oct 13/14	7:33	11:13	200m		2	"	50+50+50			"	"	"	"	"	0E27	Fine Haze Base 180 IC 106 ?
765	"	" 24 galaxies	1 22 28	-1°52' 52"			"	0:25	4:20	235m		2	"	"			"	"	"	"	"	4W70	Base 270°
766	"	" 17 "	1 23 54	-1°54' 01"			Oct. 14/15	7:05	11:05	240m		3	"	"			10	"	"	"	"	0E38	" 180°
767	"	" 14 "	1 21 57	-2°01' 36"			"	0:35	4:35	240m		"	"	"			"	"	"	"	"	5W00	" 270° Skip, Comparison Spect. poor,
768	"	" 10 "	1 24 57	-2°16' 35"			Oct. 15/16	7:17	9:52	155m		2	"	75+75			9	"	"	"	"	1E44	" 180°
769	"	" 14 "	1 21 57	-2°01' 30"			"	10:39	1:24	165m		2	"	"			"	"	"	"	"	1W50	" 180°
770	"	" 21 "	1 25 14	-2°8' 25"			"	2:02	4:32	150m		1	"	"			"	"	"	"	"	5W00	" 270°
771	Mi	anon d. gal.	2 55 28	+5 51 42			Oct 20/21	12:41	14:11	90m		1-2	He 15	-15			15	6 3 B 7°30'	1.4	"	IIa O baked.	1W26	p.a. 177°3
772	Mi	anon gal.	5 02 53	-10 17 54			"	14:41	16:11	90m		1-2	"	"			"	"	"	"	"	1W09	p.a 158°
773	Z	No. 23 of group	1 20 06	-1 35 24			Nov. 16/17	7:08	9:06	120m		1	"	40+40			9	"	3"	"	103a-O	0E18	Moon
774	"	" 22 of galaxies	1 19 36	-1°30' 24"			"	10:44	2:24	220m		1	"	90+90			"	"	"	"	"	5W00	Camera slipped badly.
N 775	JLG	Feige 24	2-32-30	+3°31	12.3 m	DA	Nov 18	12:50	13:10	20	✓	1	Ne	30-30	W2	70m	7	6 3 B 7°50	3"	675	IIa O Bard	2W41	Δ2
776	"	Feige 26	2-37-30	+3°43	12.9	sdO	"	13:22	13:55	33	50	1	"		W2		"	"	"	"	"	3W23	Δ2
777	"	Feige 27	2-37-36	+8°48	114	B8p	"	14:03	14:15	12	✓	<1	"		W2		"	"	"	"	"	3W41	Δ2
778	"	H2 4	3-52-38	+9°36	14.6	DA	"	14:31	15:37	66	✓	<1	"		W2		"	"	"	"	"	3W48	Δ1 sky Brite
779	"	Nov. Gem 1912	6-51 44	+32°13	715m	Oe	"	15:56	17.05	69	90	1	"		W2		"	"	"	"	"	2W19	Δ1 sky Brite
780	"	Feige 26	2-3730	+3°43	13	sdO	Nov. 19	13:11	14:13	62	90	<1	"		W2		8	"	"	"	"	3W43	Δ2 sky Brite, Clouds
781	"	H 23	3 50 47	+10°36	13	sdO	Nov 20	14 06	14 43	37	25	2	"		W5		8	"	"	"	"	3W05	Δ2 (2/3 window) some Moon at begin
782	"	H 27	4 31 05	+12° 35	14	DA	"	14 55	15 41	45	✓	1	"		W5		8	"	"	"	"	3W23	Δ1
783	"	Nova Gem 1912	6 51 44	+32°13	15	Oe	"	15 55	17 05	70	90	2	"		W5		10	"	"	"	"	2W25	Δ1 Clouds
784	"	Nova Gem 1912	6 51 44	+32°13	15	Oe	Nov 22	16 05	17 15	70	✓	4	"		W7		8	"	"	"	"	2W43	Δ1
785	Mi	NGC 1275	3 17 02	+41 21 32			Dec 9/10	8:22	13:52	330		3-1	He 20	-20			15	6 3 B 7°30'	1.4	6.85	"	4W02	p.a 175°8 · 10" pos 6"S N of nucl.
786		NGC 3115	10 03 09	-7 30 30			"	14:45	17:00	135		2	"				"	"	"	"	"	CW25	p.a. 45° 50" N of nucl.
787		NGC 224	0 40 25	+41 2 12			Dec 11/12	6:29	7:19	50		3	He 45	-45			7	"	3"	6.75	"	0W13	p.a 128° 10" N of nucl.
788		"	"	"			"	7:46	8:21	35		3-4	"				7	"	"	"	"	1W15	" "
789		NGC 1275	3 17 02	+41 21 32			"	8.43	12:43	240		4	He 20	-20			15	"	1.4	6.85	"	3W01	p.a 175°8 12"5 pos 2"5 N of nucl.
790		anon. d. gal	8 03 32	-0 51 00			"	13:18	14:23	65		3	"				"	"	"	"	"	0E04	p.a. 30°
791		NGC 3115	10 03 09	-7 30 30			"	15:04	16:44	100		3	"				"	"	"	"	"	0W16	p.a 135° 70" N of nucl.
792	Z	Galaxy 18 of group	1-25-47	-1° 31' 42"			Dec. 12/13	6:28	9:28	180		2	He 100	+100			9	"	3"	6.75	103a-O	1W40	p.a. 270°
793	"	Irregular Double gal.	7-7m 50	+73°33' 40"			"	11:32	2:32	180		2	"				"	"	"	"	"	0W57	p.a. 180° galaxy with K pear shaped annex
794	"	NGC 3115	10-2-46	-7° 28'			"	4:00	5:00	60		1	"				"	"	"	"	"	0W33	p.a. 227°

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N 795	Z	galaxy 25 of group	1-26-35	-1° 8' 24"			Dec. 13/14	6:26	9:26	180m		2	He + H	100 +100			9	63B 7°30'	3"	6.75	103a-O	1W47	Base 270° Light Haze
N 796	"	Multiple galaxy	7-43-25	+39° 10'			"	10:39	1:39	180		2?	"	"			9	"	"	"	IIa-O Bkd.	0E22	" 8600 "
797	"	Messier 32	0-40-0	+40° 36'			Dec. 14/15	6:01	6:21	20m		1	"	"			9	"	"	"	103a-O		" 180° Very windy.
798	"	galaxy 16 of group	1-20-49	-2° 17' 54"			"	8:02	11:02	170m		1	"	"			9	"	"	"	"	3W27	" 270° Smoke from Forest Fire
N 799	JG	Feige 4	0 17 24	+13 36	14	?	Dec 15	11 12	11 52	40	70	<1	He	30 60	W2	70m	7	63B 7°50	3"	6.75	IIa-O Bkd	5W25	comparison stars: Δ1
800		HZ 10	4 07 11	+17 54	14.3	DA	"	12 32	13 12	30	V	1		30 30	W2		7				"	2W35	" Δ1
801		LB 1240	4 01 33	+25 01	14.7	DA	"	13 40	15 05	85	V	1		"	W3	70m	7				"	4W36	" Δ1
802		LDS 275AB	9 35 00	-37 07	14.2	DC?	"	15 28	17 00	93	120	<1		"	W3		7				"	1W16	Both stars, but mostly A, guided on B Δ1
803	JG	HZ 9	4 29 23	+17 38	14.2	DAe	Dec 16	12 40	13 27	49	V	2	He	45-45	W4	70m	7	"	"	"	IIa-O Bkd	2W33	Δ1
804		F112	7 49 06	-14 35	12.8	A2	"	13 42	14 16	34	✓	2			W4		7				"	0W21	Δ2
805		LB17-13	7 52 48	-14 38	13.6	DA	"	14 33	15 03	30	✓	2			W4		7				"	1W24	Δ1
806		LDS 275A	9 35 00	-37 07	14.2	DC	"	15 19	16 54	95	V	2			W4		8				"	1W14	Mostly A, some gold. Sky Bright Δ1
807	JG	LB 1240	4 01 33	+25 01	14.2	DA	Dec. 17	13 05	14 20	80	60	2	He	45-45	W3	70m	7	"	"	"	IIa-O Bkd	4W47	Δ1 Dark night
808		Nova Pyx	9 02 33	-32 11	11	Oe	"	14 37	15 20	73	V	2	"		W3		9				"	0W46	Δ1 Some slight contamination by companion S
809		LS32-81	8 39 42	-32 47	11.7	DA?	"	16 09	16 15	16	✓	2	He	90	W3		7				"	1W38	Δ2
810		HZ 22	12 12 16	+36 56	12.7	B2	"	16 36	16 52	16	10	3		45 45	W3		7				"	1E21	Δ1
811	JG	Nova Aur	5 28 49	+30 24	15.5	Oe	Dec 18	13 43	14 43	60	✓	3		45 45	W3		7	"	"	"	"	3W21	Δ1 Plates Fogged Smoke Forest Fire
812		LS32-81	8 39 42	-32 47	11.7	DA?	"	15 51	15 27	26	✓	2		90	W3		7				"	0W50	Δ2
813	"	Tou. 547	10 46 18	+28 10	15.5	DA	Dec. 20	15 24	16 46	82	✓	3	He	45 -45	W4		8				"	2E06	Δ1
814		HZ 22	12 12 16	+36 46	12.7	B3	"	16 57	17 04	10	✓	2		90	W4		7				"	0E57	Δ1
815	MG	Abell 7	5 1 18	+15 39	14.4		Jan 12/13	8:23	9:38	75		2	He	60 60		75m	8	63B 7°30'	3"	6.75	"	0W17	Δ1 Nucleus. Occasional thin clouds
816	"	NGC 3115	10 3 12	-7 30.8			Jan 13/14	12:15	15:45	210		1-1	"	"	—		"	63B 7°30'	"	"	"	1W27	p.a. 135° 20" N fall nucleus. Shifted camera!
817	"	"	"	"			Jan 14/15	12:35	16:05	210		1-2	"	"	-		"	63B 7°50'	"	"	"	1W51	Δ1 " Shift of camera! Occasional thin clouds
818	"	"	"	"			Jan 15/16	11:41	15:41	240		2-3	He	20-20			15	64B 15°00'	1.4	6.85	"	1W31	p.a 45°, 70" N fall nucleus. Thin clouds most of time
819	Z	NGC 1350	3-29-08	-33° 47' 56"			Feb. 4/3	6:36	8:36	120m		1	He	100 +100			10	64B 7°30'	3"	6.75	103a-O	2W10	Supernova Coates included.
820	"	NGC 3124	10-4-16	-18° 58' 30"			"	10:35	1:35	180m		1-2	"				9	"	"	"	"	0W35	Hydra I cluster. Base 197° Base 180°
821	"	" 1344	3-26-42	-31° 14'			Febr. 3/4	6:36	8:36	120m		1	"				10	"	"	"	"	2W10	Fornax Cluster Base 180°
822	"	" 2545	8-11-19	+21° 30' 43"			"	10 16	11:40	90m		2-3	"				9	"	"	"	"	2W36	Cancer Cluster Base 180°
823	"	" 3340	10-45-45	-31° 16' 13"			"	0h 21	2:41	120m		1-2					10	"	"	"	"	1W03	Hydra I Cluster Base 55°
824	MG	anon. gal.	2 20 35	+42 47 54			Feb. 4/5	6:50	7:20	30m		3	He	25 -25	#		15	63B 7°50'	1.4	6.90	IIa O Bkd.	1W11	
825	"	Abell 7	5 01 18	-15 39	14.4	O	"	7:30	9:36	120m		3-1	He	100 -100		90min	8	"	3"	6.75	"	1W46	Δ1. Nucleus. Clouds
826	"	NGC 3115	10 03 12	-7 30.8			"	10:39	14:09	210m		1-2	"				"	"	"	"	"	1W18	p.a. 135°. 20" N fall nucleus. Thin clouds most of time
827	"	* in Abell 19	6 57 36	+14 40	14.0	K2	Feb. 6/7	7:55	9:15	80		1-2	"				"	"	"	"	"	1E23	Δ1; last 15m center only. Occasional thin clouds
828	"	NGC 3115	10 03 12	-7 30.8			"	10:39	12:34	115		2-<1	He	25 -25			15	64B 15°00	1.4	6.45	"	1E02	p.a 135°. 40" N fall nucleus. Stopped by clouds!
829	"	NGC 3115	10 03 12	-7 30.8			Mar 5/6	8:00	8:30	30		1-2	He	35 -35			15	64B 15°00	1.4	6.45	IIa O Bkd	2E28	p.a 135° 10" N fall nucleus
830	"	"	"	"			"	9:35	13:35	240		2	"				11	"	"	"	"	2W39	p.a 45° 70" N fall nucleus
831	"	anon. gal	12 28 47	+12 43 04			"	14:00	16:00	120		1-2	He	150 -150		90min	8	"	3"	6.75	"	2W38	Δ1
832	"	NGC 3115	10 03 12	-7 30.8			Mar 6/7	8:25	12:25	240		3-4	He	35 -35			15	"	1.4	6.45	"	1W36	p.a 135° 60" N fall nucleus
833	"	"	"	"				12:54	13:24	30		3-4	He	35 -35			11	64B 15°00'	"	"	IIa J Bkd	2W32	p.a 135° 10" N fall nucleus
834	"	NGC 4762	12 50 51	+11 29 45				13:45	16:15	150		4-5	He	150 -150		90min	8	64B 15°00'	3"	6.75	IIa O Bkd	2W35	p.a 30°

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N 835	Mi	NGC 3115	10 03 12	− 7 30.8			Mar 7/8	8:30	11:00	150		1-2	He	35-35			15	648 / 15°00	1.4"	7.00	IIa O 6Rd.	0W10	p.a. 135° 50" N foll. nucleus
836	"	"	"	"			"	11:41	13:41	90		1-2	"				"	"	"	"	"	2W22	p.a. 135° 30" N foll. nucleus
837	"	NGC 4762	12 50 53	+11 27.2			"	13:42	16:12	150		2	He	150-150			8	633 / 7°50	3"	6.75	"	2W36	p.a. 30° 15" N foll nucleus
838	Z	NGC 2560	8-16-58	+21°8'42"			Mar. 9/10	7:24	9:54	150 min		2	He	180-180			9	643 / 7°30'	3"	6.75	103a-O	1W59	Base 180° [Very Cloudy Sky].
839	"	No. 3 of group	12-24-28	+9°18'25"			"	11:56	2:56	180 min		2+	"	"			9	"	"	"	"	1W54	" 270° Cloudy.
840	"	Anon 1 Cancer cl.	8-16-41	+21°16'23"			Mar. 10/11	7:10	11:00	230 min		2+	"	"			10	"	"	"	"	2W08	" 180°
841	"	Anon 4 in group	12-24-35	+9°18'35"			"	11:42	2:15	153 min		2-3	"	"			10	"	"	"	"	1W17	" 180° 4 interconnected galaxies
842	"	Anon 2 Cancer cl.	8-16-24	+21°13'0"			Mar. 11/12	7:12	11:00	228 min		2	"	"			10	"	"	"	"	2W13	" 180°
843	"	Anon 3 in group	12-23-55	+9°17'0"			"	11:55	2:15	140 min		2-3	"	"			10	"	"	"	"	1W21	" 176° 4 interconnected.
N 844	326	H Z 2	4 10 04	+11 44		DA	Mar. 12	7 37	8 02	23	32	2	He	30 30	W1	75 min	7	630 / 730	3"	6.75	IIa O 6Rd	3W25	4Mam Δ1
845		H Z 14	4 38 13	+10 53		DA	"	8 15	8 38	23	30	2		30-30	"		7	"	"	"	"	3W33	" Δ1
846		α CMa B	6 42 57	-16 39	8.5	DA	"	4 32		35	25	2		45-45	"		5	8°30	4	"	"	1W42	Ou diffraction pattern. Very distant Δ1 3
847		α C Ma B	"	"	"	"	"	4 01		63		2		"	"		5	"	"	"	"	1W57	" " Δ1 4
848		α C Ma B	"	"	"	"	"	4 05		125	45	2		"	"		5	"	4	"	"	1W55	Wicked full daylight rat < Δ1 5
849		Abell # 31	8 57 30	+9 06	15.5	Op	"	4 57	11 32	60	70	4		"	W2	75 min	8	7°50	"	"	"	2W19	Nice Sky Brite Δ1 6
850		Abell # 33	9 36 36	-2 34	14.7	Op	"	12 55	13 41	74	100	2		"	"		8	"	"	"	"	3W28	Δ1 star close Double, 2.5, 210° Brite = Sky 7
851		Tom. 547	10 46 48	+28 10	15.5	Dk	"	13 45	15 28	100	✓	3		4	"		8	4	"	"	"	4W10	Δ1 " 8
852		Tom. 181	14 02 00	+25 08	14.8	A2	"	15 44	16 32	52	✓	3		"	"		9	"	"	"	"	2W28	Δ1 " 9
N 853	326	Feige 36	11 01 48	+24 56	12.5	B5p	Mar. 13	12 11	12 35	28	✓	1	He	45-45	W3	75 min	8	"	"	"	"	1W15	Overcast Δ2
854		Feige 43	11 26 30	+30 28	14.1	DA	"	12 55	13 20	45	✓	1		"	"		"	"	"	"	"	1W32	" Δ1
855		Ross 451	11 37 32	+67 34	13.1	sdK	"	13 55	14 35	40	✓	1-2		"	"		"	"	"	"	"	2W36	Δ2
856		H Z 22	12 12 16	+36 56	12.7	B2	"	14 52	15 22	30	✓	1		60-60	"		"	"	"	"	"	2W48	Δ2
857		H Z 21	12 11 24	+33 12	14.2	DO	"	15 39	16 39	60	✓	1		"	"		"	"	"	"	"	4W06	Δ1
W 858	326	Abell 31	8 51 30	+9 06	15.5	Ope	May. 14	11 56	12 58	62	✓	2	He	60-60	W2	75 min	8	8°00	"	"	"	3W47	Δ1
859		+43°444 - 112	10 36 40	+43 22	11.3	O	"	13 16	13 17	7	.3	3	"	"	W2		4	7°50	"	"	"	2W-1	Δ2
860		+25°-35651	11 02 06	+24 37	11.6	sdB?	"	13 26	13 33	7	✓	3	"	"	W2		"	"	"	"	"	2W13	Δ2 Identification Doubtful 3
861		Wolf 489	13 34 18	+3 58	15.7	DC	"	13 47	15 53	126	✓	2-3	"	45-45	W2		10	4	"	"	"	2W43	Δ1 4
862		Tom. 245	15 38 24	+26 37	13.7	A7	"	16 13	16 58	45	✓	1-2	"	60-60	W2		7	"	"	"	"	1W22	2/3 of Δ2, Some dawn contamination 5
W 863	326	H Z 22	12 12 16	+36 56	12.7	B2	Mar. 15	12 32	13 09	37	✓	<1	"	60-60	W2		8	"	"	"	"	0W42	Δ2
864		H Z 28	12 30 00	+41 46	15.7	DA	"	13 24	16 05	161	✓	<1	"	45-45	W2		10	"	"	"	"	3W21	Δ1 High wind
N 865	326	H Z 22	12 12 16	+36 56	12.7	B2	Mar. 16	12 41	13 10	29	✓	2	"	60-60	W3		7	"	"	"	"	0W47	Δ2 (2/3) Clds. 1
866	"	H Z 30	12 34 48	+38 52	13.5	Bp	"	13 26	13 51	25	✓	1	"	"	"		11	"	"	"	"	2W06	Δ1 Clds 2
867	"	Feige 68	12 39 48	+16 41	12.2		"	14 04	14 24	20	✓	1	"	"	"		"	"	"	"	"	1W35	Δ2 Clds
868	"	Abell 36	13 37 54	-19 38	11.3	Op	"	14 38	15 08	30	✓	1	"	"	"		"	"	"	"	"	1W20	Δ2 Clds. Sky Bright
869	"	Tom 209	14 33 00	+24 00	12.3		"	15 19	15 37	18	✓	2	"	"	"		"	"	"	"	"	0W53	Δ2 Clds
N 870	Z	Double galaxy	16 47 38	+45° 32' 45"			April 11	12 10	15 50	210 min		3?	He	180+180			10	7°30'	3"	6.75	103a-O	0W33	Intergalactic Bridge. Base 245°
871	"	NGC 3285	10 31 15	-27°11'50"			" 12	7:51	9:51	120 min		3	"	"			9	"	"	"	"	0W55	Moon Base 296°
872	"	Double galaxy	11 4 40	+18°42'0"			" 12	10:43	12:13	90 min		4	"	"			10	"	"	"	"	2W43	Intergalactic bridge. Base 242°
873	"	1 of Triple "	16 48 02	+45°35'0"			" 12	1:49	3:49	120 min		4	"	"			"	"	"	"	"	0W37	Base 213°

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, SALT LAKE, CHICAGO

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N874	Z	NGC 3511	11-0-58	-22° 49' 05"			April 13	7:40	9:10	90m		2					10	7°30'	3"	6.75	103a-O	0E12	Near Hydra I Cluster. Base 180°
875	"	Double galaxy	12-3-13	+31° 20' 50"			"	10:54	12:54	120m		3					"	"	"	"	"	2W30	Base 181.3° Moon
876	"	#1 of double galaxy	12-17-47	+49° 34' 45"			"	1:35	3:05	90m		3†					"	"	"	"	"	0E33	Base 180°
877	"	NGC 3585	11-10-32	-26° 9'			April 14	7:54	10:22	60m		1-2					"	"	"	"	"	0W55	" 180° Clouds, Moon
N878	Mi	NGC 4111	12 05 00	+43 17 30			Apr. 28/29	7:59	8:59	60m		2-3	He A	3m-3m 20°-20°	120m		8	64B 15°00'	3"	6.75	IIaO Bkd	0E28	p.a. 151° nucleus, maj. axis
879	"	NGC 4762	12 50 53	+11 27 12			"	9:27	11:57	150m		2-3	He	45s-45s	"		15	"	1.4	6.95	"	1W45	p.a. 30.5° 45" N tail nucleus
880	"	NGC 4111	12 05 00	+43 17 30			Apr. 29/30	7:53	9:23	90m		3-4	He A	3m-3m 20°-20°			8	64B 14°10'	3"	6.75	"	0	p.a. 150.5° nucleus, maj. axis
881	"	NGC 4697	12 46 28	-5 34 42			"	9:55	10:55	60m		2-3	"	"			"	64B 15°00'	"	"	"	0W51	p.a. 68° maj. axis
882	"	NGC 4621	12 39 58	+11 52 12			"	11:35	12:35	60m		3	"	"			"	"	"	"	"	2W38	p.a. 165° maj. axis
883	"	NGC 4472	12 27 42	+8 13 28			May 4/5	7:57	10:57	180m		<1-1	He	3m-3m			78	63B 7°50'	3"	"	"	1W32	p.a. 0°
884	"	anon. gal	16 27 12	+39 37 15			"	11:42	13:12	90m		1-2	He	25s-25s			15	"	1.4	6.95	"	0E13	
885	"	" "	16 27 13	+39 44 50			"	13:43	14.58	75m		2-3	"				"	"	"	"	"	1W33	
N886	Z	NGC 3511	11 0 58	-22 48 50			May 5/6	7:52	9:52	120m		2	He	180+180			9	7°30'	3"	6.75	103a-O	1W57	Base 180°
887	"	No. 2 of double galaxy	17 18 03	+49° 5' 24"			"	12:02	3:02	180m		3†	"				"	"	"	"	"	0W51	" " Cloudy
888	"	Double galaxy	12 13 05	+28° 27' 8"			May 6/7	8:28	10:58	150m		4	"				"	"	"	"	"	1W55	Base 146° interconnected galaxies
889	"	a,b,c, Seyfert group	15-57-0	+26° 53' 25"			"	11:51	2:51	180m		3†	"				"	"	"	"	"	2W04	" 160°
890	"	a,d,f "	15-57-02	+26° 54' 30"			May 7/8	8:11	11:11	180m		3	"				"	"	"	"	"	1E32	247.5°
891	"	a,e "	"	"			"	12:01	3:01	180m		4	"				"	"	"	"	"	2W18	287°
N892	Mi	NGC 4479	12 28 1.5	+13 48 12			May 28	8:29	17:59	210m		4-1	He A	3m-3m 20°-20°			8	64B 15°00'	11	"	IIaO Bkd	4W03	p.a. 102°
893	"	anon. gal	16 27 00	+39 41 38			June 1/2	8:50	9:35	45m		1-2	He	25-25			15	63B 7°50'	1.4	6.95	"	2E0	
894	"	"	16 27 21	+39 43 50			"	9:46	11:01	75m		1-3	"				"	"	"	"	"	0E34	
895	"	"	16 27 23	+39 44 30			"	11:37	12:22	45m		3	"				"	"	"	"	"	0W48	
896	"	"	16 27 20	+39 44 52			"	12:28	13:13	45m		3	"				"	"	"	"	"	1W39	
897	"	"	16 27 40	+39 35 12			"	13:22	13:52	30m		3	"				"	"	"	"	"	2W18	
898	"	"	16 27 18	+39 31 37			"	13.57	14:27	30m		2-3	"				"	"	"	"	"	2W53	
899	"	anon gal	18 36 36	+17 12 51			"	14:45	14:52	7m		2	"				"	"	"	"	"	1W09	
N900	326	AC+79°3888	11-44-18	+78° 57	12.5	sdM4	June 8	8 24	9 01	17m 17m	✓	2	A 15-15 1Hz 15-15		W1 70m ± 4 200w		7	63B 8°10	3"	6.75	IIaO Bkd	2W36	Two exp. Δ1, Δ2c
901	"	HZ 20	12-10-12	+42° 57	15.1	Bp	"	9 16	10 26	70	✓	3	"	"	"		8	7°50	"	"	"	3W37	Δ1
902	"	HZ 22	12-12-16	+36° 56	12.7	B2	"	10 35	10 55	20	25	3	"	"	"		7	"	"	"	"	4W04	Δ2
903	"	Abell 39	16-25 30	+28° 01	15.7	Op	"	11 17	13 17	120	7°	3	"	"	"		8	"	"	"	"	2W12	Δ1
904	"	Abell 43	17 51 12	+10° 38	14.6	Op	"	13 31	14 31	45	✓	3	"	"	"		7	"	"	"	"	1W30	Δ1
905	"	+4° 3561	17-55-25	+4° 35	11.3	sdM4	"	14 40	14 54	5,5,2	✓	3	"	"	"		"	"	"	"	"	2W18	Three exp. Δ1 5m Δ1c 5m Δ1c 2m
906a	"	Kruger 60B	22-26 12	~~+57° 20' 12~~ +57° 27' 12	8	dM6	"	15 00	15 16	10	12	3	"	"	"		"	"	"	"	"	1E49	Some Halo B on A1 Little contamination
b	"	Kr 60 A = +56° 2783	~~22 26 12~~	+57° 27	11.4	dM4	"	15 17	15 23	6	✓	3	"	"	"		"	"	"	"	"	1E49	Down A on Δ1c OK
907	326	+0° 2989	12 48 10	-0 29 27	9.5	dM6	June 9	8 15	8 21	90sec 60sec	✓	3	A 15-15	1K 15-15	W1		6	63B 8°10	"	"	"	0W52	Two exp; weaver 130" ap. Δ1c D
908	"	-8° 4352 AB	16 52 48	-8 14 42	10.5	dM3e	"	8 40	8 44	4m 2m	✓	2	"		W1		6	8°10	"	"	"	2E41	Two exp; Δ1c D
909	"	-8° 4352 C	"	"	13.5	sdM?	"	9 06	9 40	25, 18m	✓	3	"		W1		6	8°10	"	"	"	1E49	Two exp ½ Δ1c
910	"	HZ 22	12 12 16	+36 56	12.7	B2	"	9 52	10 25	33	✓	2	"		W1		6	7°50	"	"	"	3W37	Δ2
911	"	HZ 39	13 02 24	+28 23	15.2	sdB	"	10 38	11 45	67	✓	2	"		W1		8	7°50	"	"	"	4W08	Δ1 Sky very bright
912	"	Abell 39	16 25 30	+28 01	15.7	Op	"	12 04	12 14	70	✓	4	"		W2		8	7°50	"	"	"	2W14	Δ1 Sky very bright

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

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N 913	JLG	Abell 43	17 51 12	+10 38	14.6	O(wk)	June 9	13 30	14 20	50	✓	5	He 15 A 15	15 15	W2		6	63B 7°50	3°	6.75	IIaO Blend	1ᵂ53	Δ1
914	"	Abell 74	21 17 36	+23 57	12.3	dG	"	14 46	15 16	20ᵐ 9ᵐ	6	5	A 15	15	W2		6	" 6 38	"	"	"	0ᴱ24	Δ1c Two sky. Not exciting sky & nebs.
N 915	JLG	HD128165	14 31 51	+53 07 26	8.4	K3	June 10	8 23	8 27	4ᵐ 2ᵐ	✓	2	A 15 He 15	15 15	W1	70ᵐ	6	8°10	"	"	"	0ᴱ37	Δ1c 2 sky screen 2 sky
916	"	-8°4357C	16 52 48	-8 14 42	13	sdK4?	"	8 34	9 12	33	✓	2	"		"		6	"	"	"	"	2ᴱ12	Δ1 "
917	"	-30°4233	18 02 05	-3 02 24	11	dM2	"	9 24	9 36	3ᵐ 4ᵐ	✓	3	"		"		6	"	"	"	"	2ᴱ53	Δ1c 2 sky. "
918	"	Ton. 264	16 47 06	+25° 16	14	sdB?	"	10 12	10 43	31	✓	3	"		"		7	7°30	"	"	"	0ᴱ36	Δ1
919	"	Ton. 266	17 04 12	+25 47	15	Bp	"	10 58	12 02	64	✓	3	"		"		7	7°50	"	"	"	0ᵂ26	Δ1
920	"	Abell 46	18 29 12	+26 53	15.5	Bp	"	12 27	13 57	90	✓	3	"		"		7	"	"	"	"	0ᵂ56	Δ1
921	"	Nova Lyr 1919	18 57 30	+29 10	15.5	Ope	"	14 32	15 25	55	100	3			"		7	"	"	"	"	2ᵂ04	Δ1 Dawn! Trailed in dec. by hand
N 922	JLG	Feige 93	14 15 18	+13 16	15.1	dA	June 11	10 24	12 05	71	✓	3	A 15 He 15	15 15	W2	70ᵐ	6	"	"	"	"	3ᵂ22	Δ1
923	"	Nova Lyr 1919	18 51 30	+29 10	15.5	Ope	"	12 34	14 18	104	✓	3-4	"		"		8	"	"	"	"	0ᵂ59	Δ1
924	"	61 Cyg B	21 04 40	+38 30	7.5	K7	"	14 32	14 47	2,9,8ᵐ	✓	3	—		"		6	5°10	"	"	"	0ᴱ46	Δ1c, Δ1, Δ1c 4 sky, screen
925	"	61 Cyg A	21 04 40	+38 30	6.5	K5	"	14 50	15 00	1, 2, 5ᵐ	✓	3	—		"		6	"	"	"	"	0ᴱ32	Δ1c, Δ1, Δ1c " "
N 926	JLG	Ton. 788	15 12 18	+24 21	13	sdB	June 30	8 24	8 50	26	✓	2	He 30	30 30	W1	70ᵐ	7	63B 7°50	"	678	IIaO Blend	0ᵂ25	some Twilight Δ2
927	"	HZ 38	12 57 02	+27 48	14	sdO	"	9 05	10 07	62	530	1	"		"		"	"	"	"	D19 8ᵐ	3ᵂ37	Dark Δ2
928	"	Ton. 803	15 44 00	+25 18	14	Ob	"	10 23	10 53	30	20	2	"		"		"	"	"	"	"	2ᵂ52	" Δ1
929	"	Abell 46	18 29 12	+26 53	15.5	Ob	"	11 17	12 59	102	80	2	"		"		"	"	"	"	"	1ᵂ17	" Δ1
930	"	Supernova NGC 7331	22 34 48	+34 10	12.8	Ce	"	13 18	13 53	35	40	1	"		"		"	"	"	"	"	1ᴱ54	Slit NS along spiral arm Δ2 as contamination from nucleus
931	"	" "	"	"	"	C	"	14 00	14 16	16	20	2	"		"		"	8°45	"	"	"	1ᴱ31	same, but some Moon Δ2
N 932	JLG	Anon. Supernova	13 07 39	+3 36	16.5	?	July 1	8 57	9 57	60	200	3	Fe 10 He 45	+10 +45	W1	70ᵐ	8	63B 7°50	"	"	D19,7ᵐ IIaO Bl	3ᵂ41	½ Δ1 {Identity doubtful} {d, δ from dials.
933	"	Feige 93	14 15 18	+13 16	15.1	DA	"	10 08	11 08	60	✓	2	"		W1		7	"	"	"	"	3ᵂ44	Δ1
934	"	Feige 101	14 38 24	+18 07	11.5	A0	"	11 18	11 23	5	✓	3	"		W1		7	"	"	"	"	3ᵂ33	Δ2
935	"	Ton. 803	15 44 00	+25 18	14	ob	"	11 47	12 43	56	✓	3	"		W1		7	"	"	"	"	3ᵂ50	Δ2
936	"	Supernova NGC 7331	22 34 48	+34 10	13	sdB	"	13 04	13 53	49	✓	3	Anone He 30	Neon 30	W2	70ᵐ	7	7°00	"	"	2ᵐ IIaO Bl	1ᴱ49	Δ2
937	"	Abell 78	21 33 24	+31 28	12.6	Obf	"	14 15	14 33	17	✓	3	"		W2		7	5°50	"	"	"	0ᴱ09	Δ2
N 938	JLG	Anon Supernova	13 08 50	+3 39 38	14.8	P	July 2	8 25	9 06	41	✓	2	Fe 10 He 45	+10 +45 Ne	W1	70ᵐ	9	7°50	"	"	IIaO Bl	2ᵂ31	½ Δ1
939	"	Ton. 245	15 38 24	+26 57	13.7	A	"	9 27	10 16	49	✓	3	"		"		7	"	"	"	"	1ᵂ42	Δ2
940	"	L 845-70	17 08 30	-14 45	14.3	DC	"	10 36	11 31	55	✓	1	"		"		7	"	"	"	"	1ᵂ18	Δ1
941	"	W 672A	17 16 12	+2 00	14.4	DA	"	11 49	12 42	53	✓	3	"		"		7	"	"	"	"	2ᵂ21	Δ1
942	"	Supernova NGC 7331	22 34 48	+34 10	13.5	P	"	13 00	14 02	62	✓	1	"		"		7	6°30 7°50	"	"	"	1ᴱ38	Δ2
943	"	"	"	"	"	"	"	14 10	14 22	12	15	1			"		7	7°00	"	"	"	1ᴱ17	Δ1
944	"	Abell 78	21 33 24	+31 28	12.6	Obf	"	14 32	14 47	15	✓	3			"		7	7°00	"	"	"	0ᵂ10	Δ2
945	"	"	"	"	"	"	"	14 22	15 07	15	✓	4			"		7	7°00	"	"	"	0ᵂ30	Δ3 unwidened
N 946	JLG	Anon Supernova Virgo Field #16	13 08 50	+3 40	16.5	P	Aug. 5	8 09	8 59	45	Twin	1	He 45 A 20 Fe 5	+45 +20 5	W1	70ᵐ	8	63B 7°50	3ᴵ	678	IIaO Bld	4ᵂ33	Δ1 Unwidened
947	"	Abell 51	18 58 06	-18 17	15.5	Ope	"	9 16	11 39	143	✓	3	"		W1		8	"	"	"	"	1ᴱ49	Δ1
948	"	Nova Lac 1910	22 33 51	+52 27	14.4	ope	"	12 38	14 00	82	✓	3	"		W1		6	"	"	"	"	0ᵂ35	Δ2
949	"	Supernova NGC 7331	22 34 48	+34 10	15.5	P	"	14 11	15 38	84	100	4	"		W1		8	"	"	"	"	2ᵂ10	Δ1
N 950	JLG	L 1126-68	14 48 24	+7 47	15.5	DA	Aug 6	8 14	9 54	100	✓	2			W1	70ᵐ	8	"	"	"	"	4ᵂ20	Δ1
951	"	Abell 65	19 43 36	-23 16	15.8	Ope	"	10 21	13 16	175	✓	3	He 45 Ne 5	45 10 5	"		8	"	"	"	"	2ᵂ48	⅔ of Δ1
952	"	SN NGC 7331	22 34 48	+34 10	15.6	P	"	13 40	15 21	101	✓	6			"		7	"	"	"	"	2ᵂ01	Δ1

New Helium Tube. Corr. Exp. Slit 7 is 90 sec

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1957	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 953	JLG	Feige 2	0-09-48	+15 06	13	Ap	Aug 6	15 21	15 42	11	✓	3	He 45 Ne 5	45 5	W 1		7	63B 7°50	3"	6.78	IIIa0 B 40	0 04	Δ 1
N 954	JLG	L 1363-3	21 40 17	+20 45	13.3	DC	Aug 8	10 35	11 07	32	✓	3	"		W 2		8	"	"	"	"	1 12	Δ 2 Haze thick. Sky bright
955	"	"	"	"	13.3	DC	"	11 18	11 50	32	50	4	He 45 Ne 5	45 5	—		1/4	98B 4°50	"	"	IIaF	0 22	Δ 2 2/3 W 2
956	"	Abell 78 Nebula	21 33 24	+31 28	—	Em	"	12 14	13 14	60	Thin Cirr	4	He 10 Ne 10	10 10	—		20	"	1.4	6.95	"	1 01	Δ 3 stars, * new of slit except for 1 Haze Thick
957	"	Feige 4	0 17 24	+13 36	14.0	DO	"	14 29	15 55	86	/20	11	He 45 Ne 5 Ar 3	45 5 10	W 2		7	63B 7°50	3"	6.78	IIa0 Bkd	0 56	Δ 2 Haze
N 958	JLG	Nov. Lac. 1910	22 33 51	+52 27	>14.4	Oe	Aug 9	11 50	13 46	116	180	2	"		W 2		8	"	"	"	"	0 42	Δ 2 sky Bright; Haze, Fire, stopped Smoke
N 959	JLG	Supernova NGC 7331	22 34 48	+34 10	15.3	P	Aug 10	12 05	13 45	95	✓	2	"		W 3		9	"	"	"	"	0 46	Δ 1
960	"	"	"	"	14.7	P	"	13 52	15 22	90	✓	3	He 45 Ne 5	45 5	W 4		9	98B 5°00	"	"	IIaF	2 27	Δ 1
961	"	−11° 162	0 49 42	−10 56	18.8	Bp	"	15 33	15 45	12	✓	3	"		"		7	98B 5°00	"	"	"	0 35	Δ 2
N 962	JLG	Abell 78 *	21 33 24	+31 28	12.8	Op	Aug 11	12 01	13 03	59	✓	3	He 45 Ne 4	45 4	W 3		7	"	"	"	IIaF	1 00	Δ 2
963	"	"	"	"	"	"	"	13 21	14 01	45	✓	3	"		W 2		7	64B 14°00	"	"	IIa0 Bkd	2 09	Δ 2 By error, Blc used Iso lines cross bkgd of * spectrum
964	"	"	"	"	"	"	"	14 16	15 04	48	✓	3	"		W 2		7	64B 16°10	"	"	"	3 14	Δ 2
N 965	JLG	Feige 4	0 17 24	+13 36	14	DO	Aug 12	12 47	14 05	81	120	3	He 45 A 15 Ne 10	45 15 10	W 3		8	64B 16°10	"	"	"	0 28	Δ 1
966	"	"	"	"	"	"	"	14 15	15 31	76	120	3	"		"		"	64B 14000	"	"	"	0 52	Δ 1
N 967	Mi	NGC 6963	20 45 16	+0 22.7			Aug 26/27	7:43	11:20	217		3	He 45	45	90m		8	64B 15°00	3"	6.78	IIa0 bkd	1W10	
968	"	NGC 6703	18 46 10	+45 30.2			Aug 27/28	8 01	10 01	120		1-3	"		120m		"	"	"	"	"	1W57	
969	"	NGC 7626	23 18 41	+ 7 59.8			"	10:29	12:29	120		1-2	"		"		"	"	"	"	"	0E12	
970	"	NGC 6053	16 03 44	+18 16.1			Aug 28/29	7:41	9:41	120		4-2	"		—		"	63B 7°50	"	"	"	4W18	
971	"	anon d. gal	21 21 58	+24 54.3			"	10:15	13:15	180		2-3	He 8	8	—		15	"	1.4	6.95	"	2W34	p.a. 35.7
972	"	Supernova NGC 7331	22 35 13	+34 12.8	16.5	P	Aug 29/30	8:03	14:06	363	✓	3-4	He 45 A 10	45 10	240m		8	"	3"	6.78	"	2W15	
973	"	NGC 7720	23 36 24	+26 48.1			"	14:26	14:46	20		3	He 7	7	—		15	"	1.4	6.95	"	1W54	p.a. 13°
974	"	NGC 6053	16 03 44	+18 16.1			Sep 1/2	7:33	9:33	120		6-4	He 45 Ne 2	45 2	—		8	98B 4°50	3"	6.81	IIaF	4W24	
975	"	Supernova NGC 7331	22 35 13	+34 12.8	16.5	P	"	10:03	15:45	342	✓	2-4	"		360m		8	"	"	"	"	4W06	
976	"	anon d. gal.	21 05 04	−25 35.1			Sep 2/3	8:15	9:45	90		2-3	He 7	7			15	63B 7°50	1.4	6.95	IIa0 bkd	0E21	p.a. 82°
977	"	anon d. gal.	21 05 00	−25 36.5			"	9:59	11 59	120		1-2	"				"	"	"	"	"	1W53	p.a. 95.5
978	"	NGC 246	0 45 00	−12 09.4			"	12:21	12:51	30		2	Ne 1				"	114B 18°30'	"	"	103aE	0E44	West edge
979	"	"	"	"			"	12:58	13:28	30		2	"				"	"	"	"	"	0W18	North edge
980	"	NGC 1143/1144	2 53 04	−0 19.5			"	13:50	15:20	90		2-3	He 7	7			11	63B 7°50'	"	"	IIa0 Bkd	0E33	p.a. 119.5
N 981	Z	No. 10 group galaxy	1 23 17	−1 33 10			Sept. 1/2	11:10	11:50	30m		0-1	He 60	60			"	63B 7°30'	3"	6.75	103aO	—	Base 180 stopped by Clouds
N 982	Mi	anon gal	1 18 54	+15 31			Oct. 2/3	12:21	15:21	180		2	He 7	7			15	63B 7°50'	1.4	6.95	IIa0 Bkd	3W0	
983	"	NGC 1482	3 52 49	−20 37.2			"	15:31	16:11	40		1-2	"				11	"	"	"	"	1W16	
984	"	anon d. gal	21 05 00	−25 36.5			Oct 3/4	7:32	9:32	120		2-3	"				"	"	"	"	"	1W29	p.a. 95.5 very bright sky
985	"	NGC 524	1 22 41	+9 19.9			"	10:18	11:33	75m		2-3	He 45 A 10	45 10			8	64B 15°30'	3"	6.78	"	0E18	
986	"	NGC 741	1 54 17	+5 26.2			"	11:42	14:12	150		3	"				11	64B 15°00	"	"	"	1W20	
987	"	NGC 1614	4 31 55	−8 40.3			"	15:32	15:47	15		2	He 7	7			15	63B 7°50'	1.4	6.95	"	0W16	
988	"	NGC 7679	23 26 41	+3 17.3			Oct 4/5	7:26	9:56	150		3-4	He 45 A 10	45 10			8	64B 15°00	3"	6.78	"	0E25	p.a. 90"
989	"	NGC 246, comp. to nucleus	0 45 03	−12 06.1	14	G8	"	10, 13	12:28	135		"	"				"	"	"	"	"	0W44	4 min. 1
990	"	NGC 246 nucleus	"	"	11.5	G	"	12:36	12:46	10		"	"				"	"	"	"	"	1W07	min. 1
991	"	"	"	"	"	"	"	12:55	13:05	10		"	"				4	64B 16°45	"	"	"	1W35	2 min. 1

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1954	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 992	Z	No 10 group, 4 galaxies	1-23-18	-1° 33' 18"			Oct. 26	6:30	9:30			2	He + H	40+			4	7°30'	3"	6.15	103a-0		Very cloudy for first part · Base 270°
								10:32	13:42	230 min			70°	45'									
993	"	NGC 1404	3-37-00	-35° 45' 00"	11.5		" 26/27	3:12	4:12	60 min		1+	"	30+30			9	"	"	"	"		Very bright sky · Base 180°
994	"	No. 15 of group	1-21-34	-2° 07' 30"			Oct 27	6:22	9:52	210 min		2+	"	70°			9	"	"	"	"		Base 270° · No. 15 of group
995	"	No. 7 " "	1-22-58	-1° 46' 0"			"	10:37	2:30	210 "		2+	"	35+35			1	"	"	"	"		Base 270° · Partly interrupted by fog
996	"	No. 22 " "	1-19-52	-0° 58' 40"		weak	Oct. 28/29	0:53	2:53	120 "		1-2	"	"			10	"	"	"	"		Base 290° (Under exposed). Clouds
997	fw	NGC 224	0-40-35	+~~69°~~ 41° 55'			Oct. 6/7	7:21	10:21	180"		1-2	A 90'			90" W #10	7	119 B	3"	6.18	IIa-0 bkd	56"	10" S foll. nucleus } p. 9. 57°
998	"	"	"	+41° 04'			1 "	12:28	15:28	180"		2-1	A	1/2 1 1/2			"	"				6"04	10" N prec. "
999	"	M81	9-52-11	+69° 13.5				15:52	17:15	83"		2	"	"			"	"				1"21	Nucleus minor axis p. 317°
1000	"	NGC 7035	22-30-13	+11° 30.5			Oct 7/8	6:30	8:30	120"		1	A	3+3	120" W #10		8	63 B	3"	"	"	1"19	
																		7°30'					
1001	"	NGC 224	0-40-35	+41° 4'				8:52	12:57	245	c	2-1	A	2+2			"	119 B	"	"	"	5"36	Filter 5970 p.q 180°
																		17°45'					
1002	"	M81	9-52-11	+69° 14'				13:22	15:22	120		1	A, Hk				"		"	"	"	3"11	No. 3 > 6 " 120:6
1003	"	"	"	"				15:40	17:10	90		1	"	"			"		"	"	"	1"21	" 14, 15 " 132°0
1004	"	NGC 224	0-40-35	+41° 04'			8/9	6:21	10:21	240	c	1-2	A, Ne	3, 40			"		"	"	"	1"59	/137°0
1005	"	"	"	"			"	11:22	14:22	180		1	"	"			"		"	"	103a-0	5"06	clouds at end! 35°5
N 1006	Mi	NGC 224	0 40 35	+41° 04'			Dec 3/4	8:24	8:39	15		3	He 45 - 45 A 15 - 15				8	64 B 15°30'	3"	6.78	IIa 0 - Bkd	1W00	p.a. 38°, nucleus
1007	"	NGC 221	0 40 23	+40 38			1	9:29	9:44	30		3	He 45 - 45				"	63 B 7°30'	"	"	"	2W03	p.a. 40°, nucleus Δ1
1008	"	NGC 702	1 49 16	- 4 21			"	10:01	11:01	60		X-3	He 8 - 8				15	"	1.4	6.95	"	2W12	p.a. 160°
1009	"	anon galaxy	3 13 59	- 3 47			"	11:15	12:15	60		3	"				"	"	"	"	"	2W02	p.a. 80°
1010	"	NWC 560	7 23 50	- 7 37	~12.5	p	"	14:37	15:07	30		3	He 45 - 45 A 15 - 15				8	"	3"	6.78	"	0W48	Δ1
1011	"	MHa 61(12)	7 23 21	- 3 31	~12.5	p	"	15:28	15:58	30		3	"				"	"	"	"	"	"	Δ1
N 1012	Mi	NGC 224	0-40-35	+41° 04'			Dec 4/5	6:31	10:35	244	c	<1	A 90	90	90" 10"	#10	8	119 B 17°15'	3"	6.79	IIa-0 bkd	3"00	@ = 126°.7 minor axis filter 5970
1013	"	"	"	"			"	11:01	12:31	90	"	<1	A 45	45		"	"	64 B 15°10'	"	"	"	4"56	@ = 216°.7 major " no filter
1014	"	M81	9-52-11	+69° 14'			"	12:50	14:10	260		<1	"			"	"	"	"	"	"	2E36	@ = 328°.5 major axis } Cloud, high wind
1015	"	NGC 224	0-40-35	+41° 04'			6/7	7:55	12:55	300"		1	A 90 Hk 2	90 2	90" 10"	#10	"	119 B 17°15'	"	"	"	5"28	@ = 36°.7 major axis
1016	"	M81	9-52-11	+69° 14'			"	13:20	17:30	250"		1-2	A 45	45			"	64 B 15°10'	"	"	"	0"57	@ = 328°.5 "
1017	"	NGC 224	0-40-35	+41° 04'			10/11	8:24	12:30	246		<1	Hk 2+2 A 90 90					119 B 17°15'	"	"	"	5"20	@ = 216°.1 filter 5970
1018		M81	9-52-11	+69° 14'			"	13:15	15:15	120		1-2	Ne 3+3					119 B 18°0	"	"	103a-E	1E07	1270 s/# 62 061
1019	"	"	"	"			"	15:35	17:45	130		2	"	"				"	"	"	"	1W23	125 Em s/# 5586
N 1020	Z	NGC 2560	8-16-58	+21° 8' 42"			Dec. 14/15	13:15	17:17	242		1+	He 60	60			9	63 B	3"	6.79	103a-0	2"35	Base 270° Cancer Cluster
N 1021	"	No. 23 of group	1-20-17	-1° 40'			" 27/28	6:20	9:55	150		1-	"	"			10	"	"	"	"	3"12	Heavily clouded · Base 270°
1022	"	" 19 " "	1-25-7	-1° 21' 52"			" 28/29	6:02	7:22	80"		1+	He 15	15			11	"	1.4	"	"	0"40	Cloudy " "
1023	"	Anon 3 Cancer Cl.	8-17-4	+21° 13' 32"			" "	11:56	16:45	249		2-3	"	"			12	"	"	"	"	3"09	" " "
1024	"	No. 26 of group	1-25-37	-2° 18' 30"			" 29/30	8:37	10:02	85"		2	"	"			11	"	"	"	"	3"20	Overcast
1025	fw	NGC 224	0-40-35	+41° 04'		1960	Jan 1/2	6:40	11:40	300"	c	1-	A 45+45 2+2				7	119 B 17°15'	3"	6.79	IIa-0 bkd	5"58	36°.7 lip. and maj axis
1026	"	M81 (Em # 18)	9-52-11	+69° 14'		-	"	12:46	15:01	135	c	1	N2	5+5			"	18°10'	"	"	103a-E	0"16	061 p.q 0°
1027	"	" (Em # 17)	"	"			"	15:10	17:35	145	c	1-1+	"	"								2"41	p.q 30°
N 1028	Mi	NGC 221	0 40 29	+40 38 50			Jan 2/3	7:01	7:09	8		1-2	He 45 - 45 A 15 - 15				8	63 B 7°50'	3"	6.79	IIa 0 Bkd	1W28	p.a. 40° nucleus Δ1
1029	"	anon double gal.	2 55 29	+ 5 51.5			"	10:04	10:44	40		2-3	He 8 - 8				15	"	1.4	6.95	"	2W49	p.a. 175°
1030	"	NWC 560	7 23 55	- 7 39 12			"	11:22	12:07	45		1-2	He 45 - 45 A 15 - 15				8	64 B 15°00	3"	6.79	"	0E17	Δ1
1031	"	NGC 3115	10 03 15	- 7 30.8			"	12:37	17:07	270		1-2	He 8 - 8				15	64 B 15°30	1.4	6.95	"	2W05	p.a. 45° 10" N foll. nucleus

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N 1032	Mi	MWC 560	7 23 55	−7 39 12			Jan 4/5	11:05	12:25	80	✓	4-1	He 45 / A 15	45 / 15			8	64B 18°08	3"	6.78	IIa O 6kd	0W09	Δ1
1033	"	NGC 3115	10 03 15	−7 30 50			"	12:38	17:08	270		1-2	He 8	8			15	15° 38'	1.4	6.95	"	2W15	p.a. 45°, 70" N full nucleus
1034	"	MWC 560	7 23 55	−7 39 12			Jan 5/6	12:08	12:59	51	"	2-3	He 45 / A 15	45 / 15			8	15° 00	3"	6.78	"	0W48	Δ1
1035	"	NGC 3115	10 03 15	−7 30 50			"	14:03	16:03	120		2-3	He 8	8			15	15° 38'	1.4	6.95	"	1W13	p.a. 135° · 20" N full nucleus
1036	Mü	NGC 2146	6-12-20	+78°23'			Jan 17/18	7:08	8:51	103	200	2	A 90 / He 120	+90 / +120			8	119B 17°15'	3°	6.79	Bk IIa-O	1E12	Δ2 p.a. 141° through nucleus
1037	-	NGC 224	0-40-28	+41° 21'			20/21	6:47	10:43	240	✓	3-1	"				"	"	"	"	"	6W14	Δ3 p.a. 286°
1038	"	"	"	"			21/22	6:27	10:27	240		3-1	"				"	"	"	"	"	6W61	p.a. 217° thin clouds
1039	-	M81 Emb1	9-52-57	+69°19'			"	14:47	17:45	175	✓	2-3	Ne 5	+5			-	119B 18°10'	"	"	103a-E	2W58	Δ2 p.a. 236° OG2 filter
N 1040	JLG	V Ma 2	0 46 32	+5 10	13m	DG	Jan. 22	7:53	8:13	50	✓	1	He 45 / A 20	45 / 20	Ag 10-cm	W2 20"	7	64B 20°00	3.4	6.79	IIa O Bkd	4W16	Δ1 . Clds . Fogged Mirror 1
1041	JLG	Abell 30	8 44 00	+18 04	14.1	Ope	Jan 23	13 03	13 53	50	✓	i	He 45 / A 20	45 / 20		W1 70"	7	63B 7°58	11	"	IIa O Bkd	4W33	Δ1 Clds 5
1042	"	Ton. 299	8 03 00	+32 41	15.2	B	"	14 27	15 50	83	✓	1	"		Poor Cond.	"	7	"	"	"	"	4W11	Δ1 2
1043	"	Ton. 502	10 18 54	+32 12	14.4	pdF	"	16 15	16 45	30	✓	1	He 30	30 / Ag 5	clear W1	"	9	"	"	"	"	2W45	Δ1 Moonlight 3
1044	"	Feige 36	11 01 48	+24 52	12.5	G.	"	16 53	17 08	15	✓	2			W1/4 cc	"	9	"	"	"	"	2W30	Δ2 Moonlight, chart star taken, wrong star. NE Blue 4
1045	JLG	V Ma 2	0 46 32	+5 10	13	DG	Jan 24	6 43	7 23	40	✓	1	He 45 / A 20	45 / 20	Ne 15	W1 70"	8	64B 14000	"	"	"	3W03	Δ1 wrong star 1
1046	"	"	"	"	"	"	"	7 30	8 20	50	✓	1	"			"	8	"	"	"	"	4W00	Δ1 2
1047	"	Feige 22	2 27 42	+5°03	12.5	DA	"	8 46	9 11	25	✓	2	He 45 / A 20	45 / 20		"	7	63B 7°45	"	"	"	3W08	Δ2 Clds 3
1048	"	Feige 24	2 32 30	+3 31	12.5	DA	"	9 26	9 49	23	✓	2	"			"	7	"	"	"	"	3W41	Δ2 Clds - heavy 4
N 1049	Mi	NGC 221	0 40 29	+40 38.8			Jan 27/28	6:30	6:36	6		1-2	He 45 / A 15	45 / 15		75 mm	8	63B 7°50'	3"	6.79	IIa O Bkd	2W34	Δ pa 90° nucleus
1050	"	"	"	"			"	6:44	6:50	6		2	"				"	"	"	"	"	2W49	Δ1 p.a. 90° nucleus
1051	"	"	"	"			"	7:08	7:58	50		3	"				"	"	"	"	"	3W56	p.a. 60°, 5" S full nucleus
1052	"	Abell #15	6 25 24	−25 21.4	15.7		"	8:34	8:39	65		2	"				"	"	"	"	"	0E07	Δ1 trubl NS, drive very irregular!!
1053	"	MWC 560	7 23 55	−7 39 12			"	10:10	11:10	60		2-1	"				"	64B 15°30'	"	"	"	0W25	Δ1 " " " "
1054	"	NGC 3115	10 03 15	−7 30 50			"	11:53	15:55	240		1-2	He 8	8			15	"	1.4	6.95	"	2W32	p.a 45°, 70" N full nucleus.
N 1055	Mu	M81 sf E2-3	9-52-31	+69°08			Feb 19	11:09	13:09	120	✓	1	He 14 / A 2+2	W3 / UE-2			8	119B 18°0'	3"	6.79	IIa O bkd	1W22	p.a. 296°
1056	-	M81 sf E 10,11	9-52-48	+69°09'			"	13:35	17:35	240	✓	1	Ne 2+2				"	"	"	"	103a-E	5W50	221° 5
1057	"	M81 sf E 1	9-53-02	+68°58'			Feb 20	7:05	10:08	180	✓	1-2	A 2+2 / He 1+1	UE-2 / W3		150 min	"	"	"	"	IIa-O bkd	1E32	226° 5
1058	"	M81 sf E4	9-51-58	+69°06'				10:35	12:33	138	"		Ne 2+2				"	"	"	"	103a-E	1W17	40 6
1059	"	sf E5	9-52-07	+69°08'				13:10	15:10	120			"				"	"	"	"	"	5W55	35° 6
1060	"	" sf E8	9-53-04	+69° 08'			Feb 21	12:33	16:10	197	"		Ne 2+2				"	"	"	"	"	4W24	42° 0
1061	"	R Cr B	15-47-55	+26° 11' N	12.5	variable		16:30	17:06	36m	✓		A 2+2				"	"	"	"	IIa-O bkd	0E26	5970 filter (For J.L.G.)
N 1062	Mi	MWC 560	7 23 55	−7 39 12			Mar 25/26	7:11	7:55	44		2-3	He 45 / A 20	45 / 20			11	64B 15°30	3"	6.79	IIa O Bkd	0W58	Δ1
1063	"	NGC 4111	12 05 00	+43 17 30			"	8:44	16:44	420		2-3	"				"	64B 14°00	"	"	"	4W07	
1064	"	MWC 560	7 23 55	−7 39 12			Mar 26	7:05	8:09	64		3-4	"				1	64B 15°30	"	"	"	1W16	Δ1 clouds part of time
1065	"	MWC 560	"	"			Mar 29	7:01	7:49	48		2-3	"					"	"	"	"	1W08	Δ1
1066	"	NGC 4406	12 24 10	+13 10 00			"	8:13	9:45	92	110	3-4	"					"	"	"	"	1E56	Δ1 nucleus
N 1067	Z	2 stars	6 50 13	+16 59 36			Apr. 2	8:26	9:06	40m	✓	2-	He 15	+15			10	60B 7°90'	1.4	6.79	103a-O	3W14	Stars in new local group dwarf galaxy
1068	"	SN Humasca 7	12 04 38	+17°16'			"	11:32	0:32	60m	✓	3	"	"			"	"	"	"	"	1W26	galaxy and SN Humasca 7.
1069	"	SN Virgo 1959	13 08 51	+3°24'25"			"	0:58	2:59	120m	✓	2+	"	"			11	"	"	"	"	2W48	galaxy: Supernova Humason 1959
1070	"	SN NGC 4321	12 20 22	+16° 6'			Apr. 3	7:36	9:36	120m	✓	3	"	"			9	"	"	"	"	1E51	Nucleus and supernova Base 287.05

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1960

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1071	Z	Galaxy SN 9	12-32-17	+9°9'57"			Apr. 3	11:25	0:25	60m		3	He	15+15			11	63B 7°30'	1.4	6.79	103a-O	0W56	Galaxy Supernova Humason No. 9 Base 270°
1072	"	Chain Galaxies	14-50-50	+22°6'37"			"	1:17	2:17	120m		3	"	"			11	"	"	"	"	1W19	Base 215°
N1073	IVi	SN NGC 4496	12-29 36	+ 4 09.0	12		Apr 25/26	9:31	10:02	31m		2	He Ne	90³ (+2 #35) 120³ (+¼#8 +¾ #58)			8	98B 40°40'	3"	6.88	IIa F	0W02	Δ1 through clouds (44°F)
1074		R	"	"	12		Apr 26/27	7:50	8:37	47m		<1	A	"			"	"	"	"	4	1E19	Δ1 (45°F)
1075	Mü	SN NGC 4496	12-29-36	+4°09'0	v12		Apr. 29/30	12:41	14:11	90m	x3	1-2	Ne	120³ (N1073)			"	98B 6°30'	3"	6.88	I-N hyper	4W28	Δ1 OGZ clouds
1076	"	HD 182487	19-21-44	+42°53'	7.02	A0	"	14:41	15:13	4'8"/16	30m	1	"	"			"	"	"	"	"	1E23	2.5 mag screen
1077	"	MBI (nf 7848)	9-52-46	+69°14'	Em		Apr. 30	8 10	12.10	240m	✓	2-3	A He	2"+2" 90°+90°	(UG1) (K3)	75m #10 100m Bare	"	1198 17°30'	3"	6.86	IIa-Obtd	5W07	p.a. 4°.8
1078	"	NGC 5055	13-13-48	+42°13'	Sb		"	12:55	15:55	180	"	2	"	"			"	"	"	"	"	5W32	Δ3 UG1
1079	"	MBI (sp. 9810)	9-51-13	+68° 13	Em		May 1/2	7:59	9:59	120m	✓	3	"	"			"	"	"	6.82	"	3W01	pa 300°.1
1080	"	MBI (nf 3844)	9-52-30	+69° 14'	Em			10:32	12:32	120m	x2	2-1	Ne	2"+2"			"	1198 18°01'	3"	6.85	103a-E	5W34	p.a. 194°.5
1081	"	C3-298	14-17-2	+6° 40'	Anon galaxy			13:19	15:53	144m	✓	3-2	He	10³+10³			15	63B 7°30'	1.4	6.95	IIa-O bkd	4W20	Δ2, slit E-W } slightly out of focus should be 7.00
N 1082	JG	SN NGC 4496	12 29 36	+4° 09	12m	Em	May 4	10 54	11 34	40	✓	0	He	45+5	W1		7	63B 7°50	3.4	6.88	IIa O Bkφ	2W11	Δ1 Moon Bright — Haze
83	"	SN NGC 4496	"	"	12.5m	"	"	11 50	12 30	40	80	<1	Ne	5+5	W2		"	98B 40°40	"	6.86	IIa F	3W17	" " " "
84	"	HZ 22	12 12 16 (1950)	+36° 56	B3	12.8	"	12 45	13 27	42	✓	<1	Ne He	5+5 20+20	W2		"	"	"	6.86	IIa F	4W21	" " " "
85	"	"	"	"	"	12.9	"	13 42	14 24	42	✓	<1	He	60+60	W1		"	63B 7°50	"	6.88	IIa O Bkφ	5W18	" Moon Faint
86	"	Stebbins 10	14 08 12	+29 04	B6	12.9	"	14 49	15 30	41	✓	<1	"	45+45	W1		"	"	"	C.88	"	4W29	" No Moon
87	"	HZ 22	12 12 16	+36 56	12.8	B3	May 5	14 20	15 06	46	✓	<1	He Ne	20+20 5+5	W3			98B 40°40	"	6.86	IIa F	6W04	Δ1 No moon
N 1088	JG	R CBr	15 46 56	+28 16	12m	Cpe	May 6	14 11	14 52	44	✓	2	He 60+60 Ne 40+40 A 20+20		W3			648 14°00'	3"	6.79	IIa O B+φ	2W22	Δ1 { Moon-probably Kal-may not be contamination of 1088
89	"	R CBr	15 46 56	+28.16	"	"	"	15 01	15 29	28	Dense	2	He boreal A 20+20		W3			648 16°20	"	6.79	"	2W36	Δ1 } contamination of
N 1090	Jw	MBI Inf 3844	9-52-30	+69°14	Em		May 12/13	8 09	9:22	73		2-3	Ne	3				1198 18°01'	3"	6.80	103a-E	3W07	Δ2 Clouds } p.a.
"	"	"	"	"	"	"	13/14	7:59	10:29	150		2-1	"	3				"	"	"	"	4W17	Total Exp: 223m } 194°.2
N 1091	Mi	CL 1+09 +52 24	14 09 36	+52 24 08			May 20/21	9:31	14:01	270		3	He Ne	5+5 (+2<#35) 7 7 (+¼#8 +¾ #58)				98B 40°40	1.4	6.98	103a D	4W00	p.a. 19°.7 brightest + N tail galaxy Sky 54
N 1092	"	"	"	"			May 23/24	8:22	13:50	328		1-2	He Ne	3-2 4-3	K			"	"	7.00	K	4W00	" " Sky 52
"	"	"	"	"			May 24/25	9:10	13:22	252		2	He Ne	2-3 3-4	K			"	"	"	"	3W37	" " total exp 9h40m Sky 45
N 1093	Z	Supernova H II	12-29-6	+4°9'30"	14		May 30/31	8:14	8:24	10		2†	He 10+30				4	63B 7°30'	3"	6.79	103a-O	0W43	SN in NGC 4496 Base 180°
94	"	" "	"	"	"		"	9:25	9:35	10		2†	"				4	"	"	"	"	1W53	" " " 270°
95	"	NGC 4496 SC	12-29-30	+4°8'15"			"	10:00	11:30	90		2	He 15+15				13	"	"	"	"	3W49	So. Component of double galaxy Seyfert
96	"	" 7320	22-33-43	+33°42'			"	1:30	3:15	105		2	"				13	"	"	"	"	2E31	component of Stephan's Quintet. ↑
97	"	Supernova H II	12-29-6	+4°9'30"	14		May 31	10:22	10:37	15		2	He 30+30				9	"	"	"	"	3W04	SN in NGC 4496
98	"	Supernova H II	12-29-6	+4°9'30"	"		June 1	9:23	9:49	10+5		2	"				"	"	"	"	"	2W05	
99	"	" "	"	"	"		"	9:52	10:03	10+5		2	"				"	"	"	"	"	2W45	
1100	"	Seyfert Group	15-57-0	+20°54'26" (1960)			"	12:00	2:30	150		2†	He 15+15				13	"	"	"	"	3W28	nuclei
N 1101	JG	NGC 4782-3	12 55 28	−12 22	13	G	June 22	8 35	9 35	60	✓	3	He 60+60 A 10+10 Ne 5+5		W1	70 mm	8	63B 7°50	3"	6.85	IIa O Bk	3W01	slit in pa. 20. Both on slit 43. A stream on south 43
02	"	SN NGC 4096	12 03 45	+47 43	15	P	"	9 55	10 55	60	✓	3	"		"		"	"	"	"	" #509146 4½m	5W09	southern gal. larger, less concentrat
03	"	Tom. 202	14 25 44	+26 43	15.9	DC	"	11 21	12 36	75	✓	5	"		"		"	"	"	"	" DIP; gray	4W28	Δ1 ½ slit Δ1
04	"	G 21-16	18 27 02	−4° 31	15.2	DAS	"	13 00	14 30	90	✓	3	"		"		"	"	"	"	"	3W22	Dec. Rate Sticking Δ1
05	"	G 24-16	20 27 57	+ 4 33	15.2	&Me.	"	14 47	15 29	42	✓	2	"		"		"	"	"	"	"	1W20	½ slit Δ1
~~N 1106~~	~~JG~~	~~Stephenson 9~~	~~14 01 28~~	~~+28 57~~	~~14~~	~~0~~	June 23																
N 1107	JG	NGC 4496, SN	12 29 36	+4 09	15	P	June 23	8 33	9 33	60	90	2	He 20+20 Ne 5+5		W1		8	98B 40°40	3.1	6.85	IIa F	3W26	Δ1 Sky Bright
1107	"	NGC 4096, SN	12 03 45	+47 43	15	P	"	9 45	10 45	60	90	2	"		W1			"	"	"	"	5W06	Δ1 " "

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1460

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1960	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 1108	JLG	Stephenson #9	14 01 28	+28 51	14	0	June 23	11 09	11 45	36	60	2	He 30+30 Ne 5+5		W2	70cm	8	6Z B 7 30	3"	6.88	IIaO Blue	4 06	Δ1
1109	"	G 22-8	18 54 12	-4 28	15.1	G	4	12 29	13 59	90	"	2			W2		8	"			"	1 31	Δ1
1110	"	G 22-9	18 54 12	-4 28	11.2	G	"	14 10	14 17	7	✓	2			W2		8	"			"	1 45	Δ2) cpm
1111	"	G 21-6	18 11 40	-8 39	14.4	K	"	14 33	15 19	46	✓	1			W2		9				"	3 31	Δ1
1112	JLG	Abell 36	13 38 26	-19 41	15.5		June 24	8 36	8 57	15	✓	3	He 30+30 Ne 10+10		W1	70cm	6	6A B 14 30	3"	"	IIaO Blue	1 37	~~Δ1~~ Δ1
1113	"	"	"	"	11.3	sdO	"	8 59	9 24	25	✓	3	H		W1		"	16 40	"	"	"	2 11	Δ2
1114	"	Feige 88	13 18 06	+12 17	11.3	Bp	"	9 38	9 48	10	✓	3			W1		"	16 40	"	"	"	2 37	Δ1
1115	"	"	"	"	"	"	"	9 57	10 11	15	✓	3			W1		"	14 30 6 3B	"	"	"	3 09	Δ1
1116	"	L 845-70	17 09 04	-14 46	14.3	DC		12 01	13 16	75	✓	3			W1		8	7 30 4B	"	"	"	2 35	Δ1
1117	"	+70° 8247	19 00 37	+70 37	13.2	Dp	"	13 56	14 36	40	60	3			W2		8	4040	"	6.85	II q F	2 02	Δ1
1118	"	Abell 78	21 33 50	+31 31	12.6	Op	"	14 49	15 29	20	40	3			W2		8	"	"	"	"	0 02	Δ1
N 1119	Z	NGC 7320	22-33-47	+33°41' 9"			July 26	9 51	10 51	60m	300m	3	He 30				10	4B 30 30	3"	6.88	103a-0	3E 10	Member of Stephan's quintet. Cloudy Base 270
1120	"	A non	22-33-56	+33°43' 29"			"	11 18	0 09	51m	300m	3	"				10	"	"	"	"	1E 55	" " " "
1121	"	M 51	13-27-48	+47° 27'			July 27	8 15	8 45	30m	✓	2	30				10	"	"	"	"	3W 53	Cloudy Base 0
1122	"	Stellar Dwarf Galaxy	21-43-56	-21°28' 48"			"	10 32	11 35	63m	✓	2	50				8	"	"	"	"	1E 33	Widened, poor Base 180°
1123	"	Cl 0123-0138	1-23-13	-1°38' 28"			"	1 13	3 13	120m	✓	3	26				11	"	"	"	"	1E 36	Galaxy No. 12
1124	"	NGC 4096	12-3-29	+47°45' 20"			July 28	8 09	8 49	40m	100m	2	26				11	"	"	"	" (Moon)	5W 27	Supernova #12 Humason. Base 270°
1125	"	Stellar Dwarf Galaxy	28-43-56	-21°28' 48"			"	10 22	11 22	60m	100m	2	50				8	"	"	"	"	1E 42	Star #1 Base 180° Cloudy
1126	"	Cl 0123-0138	1-25-7	-1°18' 50"			"	1 18	2 25	67m	100m	2	26				11	"	"	"	"	2E 20	galaxy No. 19 Base 270° stopped, clouds.
N 1127	JLG	Ton. 264	16 47 06	+25 16	14	Bp	July 29	11 12	12 27	75	✓	2	He 30+30 A 10+10		W1		7	63B 7 30	3"	6.88	II q U Blue	4 34	Δ1 (N-S str)
1128	"	G 28-27	22 54 55	+7 40	~17	Dc?	"	12 50	15 20	150	✓	2	"		W1		9	"	"	"	"	0 10	½ Δ1; * very faint; Airglow bright (E-W str)
1129	"	G 28-40	23 05 35	+8 53	12	G	"	15 34	15 47	13	✓	3	U		W1		6	"	"	"	"	0 26	Δ2 (E-W str)
W 1130	"	Abell 74*	21 15 02	+23 57	~16.5	Op	July 30	12 02	13 35	93	x2	3	"		W2		9	"	"	"	II q U Blue	1 10	½ Δ1; double* Touch Bright extinct (* B on closed)
1131	"	CC 1363	22 26 18	+5 35	15.5	sdG	"	13 57	15 33	98	140	3	"		W2		6	"	"	"	"	1W 58	No moon
1132	"	F 110	23 17 24	-5 26	~16.5	Op	"	15 41	15 49	8	✓	2	"				6	"	"	"	"	1W 20	Sky Bright - Dawn
N 1133	"	V 348 Sgr	18 37 18	-22 57	13.5	~~G5~~ Gpec	July 31	8 33	8 43	10	✓	1	"		W2		6	"	"	"	"	1E 08	Moon very Bright. Not widened
1134	"	V 348 Sgr	"	"	13.5	~~G5~~ Gpec	"	8 48	9 13	25	50	1		+He 5sec	W2		6	"	"	"	"	0E 23	" " " Widened Δ1
1135	"	G 28-13	22 40 31	-1 43	15.8	DA3	"	12 46	14 46	120	180	2	He, A		W2		10	"	"	"	"	0W 38	2½Δ1, No moon
1136	"	Ton. S-135	0 00 42	-23 57	13.0	Bp	"	15 01	15 34	27	✓	<1	"		W2		16	"	"	"	"	0W 26	Some Dawn Δ1
N 1137	Sc	M31 Em. nub #25	0 39 24	+40 37			Aug 18	9 24	14 30	306m		3-4	He	5s	✓		13	9Z B 5° 15'	1.4	7.10	103a F(B) sky 22	0E 05	Δ2, p.a. 357°
1138	"	SN Humason #18	21 58 47	+17 32	16.5		"	15 33	15 43	10m	60m?	3	"	"	✓		"	"	"	"	"	3W 54	Δ1, p.a. 270°, too weak
1139	"	SN Humason #18	21 58 47	+17 32	16.5		Aug 19	7 54	8 04	10m	30m*	3	"	"	✓		"	"	"	"	"	3E 47	* not tracked, p.a. 90°, a bit weak sky 52.
1140	"	M31, Em. nub #24, 35	0 44 25	+41 58			"	9 12	15 43	390m	✓	2-3	"	"	✓		"	"	"	"	"	1W 04	Δ3, p.a. 83°
1141	"	M31, Em. nub #24	0 39 18	+40 52			Aug 20	9 08	14 36	180m	*	2-3	"	"	✓		"	"	"	"	"	0W 08	Δ2, p.a. 90° * interrupted by clouds: 10h 27m - 13h 15m " " 54
"	"	"	"	"			Aug 21	11 23	15 43	260m		1-2	"	"	✓		"	"	"	"	"	1W 25	" " " 48
"	"	"	"	"			Aug 22	8 23	15 33	430m 850m	✓	1	"	"	✓		"	"	"	"	"	1W 14	" " " 55
1142	"	M31, Em. nub #2	0 44 31	+42 15			Aug 23	8 45	15 45	420m	✓	1-3	"	"	✓		"	"	"	"	"	1W 24	Δ3, p.a. 90° " 55
1143a	RPK	RU Peg	22 12 09	+12 30	12.2	dG+be	Aug 24	8 44	9 16	32m	OK	1-2	He 30+30				8	6B 15° 20'	3"	6.98	IIa-0 baked	2E 29	IC.
b	"	"	"	"	"	"	"	9 20	9 50	30m	OK	"	"				"	"	"	"	"	1E 55	I
c	"	"	"	"	"	"	"	9 53	9 24	31m	OK	"	"				"	"	"	"	"	1E 22	IC

CHARLES E. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, SEN YORK, MEXICO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1960	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1144a	RPK	RU Peg	22 12 09	+12 30	12.2	dG +sdBe	Aug 24/25	11:07	11:37	30m	OK	2	He 30+30 Ar 20+20		(2c)		8	67B 15°20'	3"	6.98	IIa-o baked	0E08	1c upper
b	"	"	"	"	"	"	"	11:41	12:11	30m	OK	2-3	"				"	"	"	"	"	0W26	1
c	"	"	"	"	"	"	"	12:14	12:43	29m	OK	2-3	"				"	"	"	"	"	0W58	1c lower
1145a	"	"	"	"	"	"	"	13:27	13:54	27m	OK	2	"				"	"	"	"	"	2W09	Part of exp. 13:01~13:25 spoiled in comparison by accident.
b	"	"	"	"	"	"	"	13:57	14:29	32m	OK	2	"				"	"	"	"	"	2W44	1
c	"	"	"	"	"	"	"	14:30	15:00	30m	OK	2	"				"	"	"	"	"	3W16	1c lower
1146a	"	"	"	"	"	"	"	15:16	15:36	20m	OK	2	"				"	"	"	"	"	3W51	1c upper
b	"	"	"	"	"	"	"	15:39	16:04	25m	OK	2	"				"	"	"	"	"	4W19	1
1147	"	"	"	"	12.3	"	Aug 25/26	9:47	8:17	30m	OK	3	—		Pf #2 10m, #4		"	"	"	"	"	3E25	(2c upper) Mag. est. 12.3 v is.
1148a	"	"	"	"	"	"	"	9:51	10:21	30m	OK	3	He 30+30 Ar 20+20				"	"	"	"	"	1E21	1st exp was useless with arc interference
b	"	"	"	"	"	"	"	10:26	10:57	31m	OK	3	"				"	"	"	"	"	0E47	1
c	"	"	"	"	"	"	"	10:58	11:28	30m	OK	3	"				"	"	"	"	"	0E13	1c lower
1149a	"	"	"	"	"	"	"	11:39	12:09	30m	OK	3	"				"	"	"	"	"	0W28	1c upper
b	"	"	"	"	"	"	"	12:13	12:43	30m	OK	3	"				"	"	"	"	"	1W02	1
c	"	"	"	"	"	"	"	12:45	13:16	31m	OK	3	"				"	"	"	"	"	1W35	1c lower
1150a	"	"	"	"	"	"	"	13:27	13:58	31m	OK	3	"				"	"	"	"	"	2W17	1c upper
b	"	"	"	"	"	"	"	14:01	14:56	55m	OK	3	"				"	"	"	"	"	3W15	1
c	"	"	"	"	"	"	"	15:01	15:31	30m	OK	3	"				"	"	"	"	"	3W51	1c lower
1151a	"	RX And	01 02 19	+41 05	13.5	sdBe	Aug 26/27	11:34	12:05	31m	OK	1-2	He 30+30 Ar 10+10				"	63B 7°50'	Hk	"	"	2E22	1c upper
b	"	"	01 02 19	+41 05	"	sdBe	"	12:08	12:38	30m	OK	1-2	"				"	"	"	"	"	1E47	1
c	"	"	"	"	"	"	"	12:39	13:09	30m	OK	1-2	"				"	"	"	"	"	1E22	1c lower
1152a	"	"	"	"	"	"	"	13:53	14:19	26m	OK	1-2	"		Pf #2 10m, #4		"	"	"	"	"	0E08	1c upper
b	"	"	"	"	"	"	"	14:22	14:48	26m	OK	1-2	"				"	"	"	"	"	0W21	1
c	"	"	"	"	"	"	"	14:49	15:10	21m	OK	1-2	"				"	"	"	"	"	0W43	1c lower
1153a	"	"	"	"	"	"	"	15:20	15:39	19m	OK	2-3	"				"	"	"	"	"	1W13	1c upper
b	"	"	"	"	"	"	"	15:41	16:03	22m	OK	2-3	"				"	"	"	"	"	1W36	1
1154a	"	SVS 809 Cyg	21 58 05	+49 11	~13		Aug 27/28	8:15	8:44	29m	OK	2	He 30+30 Ar 10+10				"	"	"	"	"	2E36	1 (Put slit about 2 stars wide this position.)
b	"	SVS 852 Peg	00 45 51	+40 39	~13		"	9:04	9:37	33m	OK	1-2	"				"	"	"	"	"	4E31	1c upper
c	"	RX And	01 02 19	+41 05	13.5	sdBe	"	9:43	10:03	20m	OK	2	"				"	"	"	"	"	4E21	1c lower
1155a	"	"	"	"	"	"	"	10:12	10:29	17m	OK	2	"				"	"	"	"	"	3E54	1c upper
b	"	"	"	"	"	"	"	10:34	10:50	16m	OK	2-3	"				"	"	"	"	"	3E33	1
c	"	"	"	"	"	"	"	10:50	11:06	16m	OK	2-3	"				"	"	"	"	"	3E17	1c lower
1156a	"	"	"	"	"	"	"	11:14	11:31	17m	OK	2-3	"				"	"	"	"	"	2E52	1c upper
b	"	"	"	"	"	"	"	11:33	11:49	16m	OK	2-3	"				"	"	"	"	"	2E34	1
c	"	"	"	"	"	"	"	11:49	12:04	15m	OK	2-3	"				"	"	"	"	"	2E19	1c lower
1157a	"	"	"	"	"	"	"	12:17	12:33	16m	OK	2-3	"				"	"	"	"	"	1E50	1c upper
b	"	"	"	"	"	"	"	12:37	12:52	15m	OK	2	"				"	"	"	"	"	1E31	1
c	"	"	"	"	"	"	"	12:52	13:08	16m	OK	2	"				"	"	"	"	"	1E15	1c lower
1158a	"	"	"	"	"	"	"	13:15	13:31	16m	OK	2	"				"	"	"	"	"	0E52	1c upper
b	"	"	"	"	"	"	"	13:34	13:48	14m	OK	2	"				"	"	"	"	"	0E35	1

CHARLES E. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1960	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1159a	RPK	TZ Per	02 11 00	+58 12	13.5	sdBe	Aug 27/28	14:19	15:09	50m	OK	2	He Ar	60 20			8	63B 7°50'	3"	6.98	IIa-0 baked	0E22	Ic lower
b	"	"	"	"	15.7	"	"	15:11	15:59	48m	OK	2	"	"			"	"	"	"	"	0W27	1
N1160a	"	EY Cyg (Herbig)	19 53 04	+32 15	16.0	—	Aug 28/29	11:35	12:36	61m	OK	2-3	He Ar	60 20			"	"	"	"	"	3W26	Ic(lig) [2 stars in the junction. Separation 1/2 mm. Base at 12° curved N-S., mags 15.7 (6.0) N-comp
b	"	EY Cyg (Rosino)	"	"	15.5	sdBe+G	"	12:55	13:25	30m	OK	2-3	"				"	"	"	"	"	4W75	Ic (lower)
1161a	"	FO Per	04 05 32	+51 09	15.5	sdBe	"	14:14	15:13	59m	OK	2-3	He Ar	60 20			"	"	"	"	"	2E11	Ic upper
b	"	FO Per	"	"	"	"	"	15:15	16:08	53m	OK	2-3	"				"	"	"	"	"	F14	Ic lower
N1162a	"	EY Cyg	19 53 04	+32 15	15.5	sdBe+G	Aug 29/30	11:10	11:50	40m	OK	3	He Ar	30+30 10+10			"	"	"	"	"	2W44	Ic upper
b	"	"	"	"	"	"	"	11:53	12:33	40m	OK	3	"				"	"	"	"	"	3W27	1
c	"	"	"	"	"	"	"	12:34	13:14	40m	OK	2	"				"	"	"	"	"	4W08	Ic lower
1163a	"	"	"	"	"	"	"	13:28	14:08	40m	OK	2	He Ar	60 20			"	"	"	"	"	5W02	Ic upper
b	"	"	"	"	"	"	"	14:10	14:50	40m	X2	1-2	"				"	"	"	"	"	5W44	1
1164	"	SS Aur	06 10 20	+47 45	15.0	sdBe	"	15:35	16:04	29m	OK	2-3	He Ar	60 20			"	"	"	"	"	3E99	1
N1165a	"	SS Aur	06 10 20	+47 45	14.7	sdBe	Aug 30/31	12:48	13:28	40m	OK	2	He Ar	30+30 10+10			"	"	"	"	"	5E52	Ic upper
b	"	"	"	"	"	"	"	13:29	14:09	40m	OK	2-3	"				"	"	"	"	"	5E10	1
c	"	"	"	"	"	"	"	14:10	—	—	—		"				"	"	"	"	"	—	Ic lower (Stoffel: thy clouds 14:17)
N1166a	"	AH Her	16 42 30	+25 20	13.0v	sdBe	Sept 15/16	7:21	7:39	18m	OK	1	He Ar	30 20			4	"	"	"	"	2W50	Ic upper
b	"	"	"	"	"	"	"	7:92	8:02	20m	OK	1	"				"	"	"	"	"	3W13	1
1167a	"	AY Lyr	18 43 04	+37 58	15.5v	UCrem	"	8:29	9:30	61m	X2	0-1	He	10			10	"	"	"	"	2W70	Ic upper
b	"	"	"	"	"	"	"	9:32	10:35	63m	X2	1	Ar	15			"	"	"	"	"	3W75	1
1168a	"	AB Dra	19 50 44	+77 39	15.0	"	"	11:00	11:40	40m		1-2	He	15+15			8	"	"	"	"	3W43	Ic upper
b	"	"	"	"	"	"	"	11:44	12:24	40m		"	Ar	10+10			"	"	"	"	"	4W27	1
c	"	"	"	"	"	"	"	12:39	13:19	40m		"					"	"	"	"	"	5W22	Ic lower
1169a	"	NGC 7790, A	23 56 26	+61 00	11.5	B	"	15:16	15:26	10m		1-2	He	30+30			"	64B 15°20'	"	"	"	3W24	Ic upper
b	"	NGC 7790, #95	"	"	13.0	B	"	15:31	15:50	19m		1	Ar	15+15			"	"	"	"	"	3W48	1
N1170	Z	Amcw	22-33 -55	+33° 48' 29"			Sept. 16/17	7:15	10:35	200m	400m	2	He	13+13			11	3°30'	3"	6.88	103a-O	0E02	Base 270°. Possible member of Stephan's quintet
1171	"	Galaxy 27, cluster	1-22-19	−1° 46' 47"			"	11:57	2:07	130m	0.K	2	"	"			11	"	"	"	"	0W43	Base 270°
1172	"	NGC 7320	22-33-47	+33° 41' 9"			" 17/18	7:05	11:05	240m	0.K.	3	He	20+20			11	"	"	"	"	0W32	Base 270° Member Stephan's Q.
1173	"	No. 24 in Cl 0123.	1-21-51	−1° 41' 01"			" "	0:43	3:18	155m	"	3	"	"			11	63°B 7°30'	"	"	"	1W58	Camera: Base 270°
1174	"	Capricorn Dwarf	21-43-56	−21° 28' 48"			Sept. 19/20	7:02	9:02	120m	"	1+	He	30+30			9	"	"	6.79	"	0E33	
B	"	"	"	"			"	9:05	9:15	10m	"	1+	"				"	"	"	"	"	0E20	
1175	"	Galaxy 29 in Cl.	1-22-21	−1° 58' 56"			"	10:13	1:23	180m	"	2+	He	20+20			11	48B 3°30'	"	6.88	"	0W03	Cl 0123 − 0.38
1176	"	" 30 "	1-21-58	−1° 56' 19"			"	2:13	3:43	90m	"	2	"				"	"	"	"	"	2W32	"
N1177	JAG	NGC 188 * II-59	0 39 05	+85° 01 40			Sept. 20	7 42	9 01	79	✓	1	He	90-90	W1		7	64B 15°-15	3"	6.90	IIaO B&H	3E25	Δ1
78	"	" * I-69	0 41 45	+84 59			"	9 21	10 21	60	70	1	"		W1		"	"	"	"	"	2E07	Clds "
79	"	" * II-105	0 43 28	+84 58 50			"	10 44	12 07	83	100	<1	"		W1		"	"	"	"	" X159	0E22	clds " 3
80	"	" * II-76	0 42 42	+85 05 15			"	12 29	13 58	88	✓	2	He Ar	60+60 15+15	—	Developed, Scheraty from 1177-117, but 5x12 be c-spheric	"	"	"	"	"	1W31	" 4
81	"	" * II-72	0 42 11	+85 03 00			"	14 17	15 50	93	✓	2	"		—		"	"	"	"	"	3W22	" 5
82	"	AD 21910	3 32 36	+74 36			"	16 03	16 33	10,20,40,60	✓	2	"		—		"	"	"	"	"	0W45	Δ1 Annular extrusions 6
83	"	HD 15084	2 23 24	+18 41			"	16 23	16 50	20,40,60 3x1/2		2	"		—		"	"	"	"	"	2W19	Δ1 " 7
84	"	H 184909	19 33 48	+14 24				7 13	7 17	7+7+180		1	He A	4m 1m	—		7	"	"	"	IIaO Bed	0E01	Δ1, 1/2 Δ2c O L mag Green 1

CHARLES R. BARLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
							1960																
N 1185	JLG	HD 192020	20 09 30 (1950)	+38 15	8.5	G8	Sept. 21	7h27	7h34	29,40 805	V 3/4	1	He A	4m 1m	—		7	UV B 15°15'	3"	6.90	IIIa-O Baked	0h19	0m.6 screen Δ1, ½Δ2c 2
86	"	205837	21 35 18	+14 59	"	G4	"	7 43	7 47	"	X 1/2	<1	4		—			"	"		"	1E32	" " Focus poor 3
87	"	219828	23 16 18	+18 22	"	G0	"	8 00	8 05	30,45 90s	3/4	<1	"		—			"	"		"	2E54	" " 4
88	"	220008	23 17 48	+6 36	"	G4	"	8 17	8 23	29,45 80s	3/4	<1	"		—			"	"		"	2E38	" " 5
89	"	NGC 188 × II-75 (NGC 188 plate)	0 42 25	+85 05	13.7	K	"	9 08	11 08	120m	90	<1	He 6p+6o A 15+15		W 1	70m		"	"		IIIa-O Baked X 154	1E17	Δ1 6
1190	"	NGC 188 × II-181	0 44 22	+84 56	13.3	"	"	11 30	13 20	110	✓	1	"		W 1			"	"		"	0W53	" 7
91	"	" III-18	0 40 39	+84 54 30	12.9	"	"	13 42	15 32	90	120	<1	"		W 1			"	"		"	2W51	" 8
92	"	" I-1	0 44 14	+85 00	13.1	"	"	15 33	16 35	62	✓	1-2	"		W 1			"	"		"	9W10	" 9
93	JLG	HD 189084	19 54 00 (1950)	+60 29	8.5	M0	Sept. 22	7h11	7h19	15,30 60	—	4	He 3 A 1		W 1			4	3"	6.80	IIIa-O Baked + λ 154		0m.6 screen Δ1 ½Δ2c 1
94	"	HD 196643	20 35 30	+37 35	"	K5	"	7 29	7 35	10,40,50	X	4	"		W 1			"	"		"		" Poor 2
95	"	HD 205837	21 35 18 (1950)	+14 59	"	G4	"	7 45	7 49	15,30,60	"	4	"		W 1			"	"		"		" 3
96	"	NGC 188 + I 165	6 43 29	+84 58	13.6	K	"	8 09	9 03	74	✓	3	60+60 15+15		W 1			"	"		"		Δ1 4
97	"	" × III-18	0 40 52	+84 54	12.9	"	"	9 40	10 19	39	✓	3			W 1			"	"		"		Δ1 5
98	"	" × II-88	0 43 45	+85 04 50	14.2	"	"	10 33	13 16	163	✓	3-4						"	"		"		Δ1 Solarized in hypo! 6
99	"	" × I-57	0 42 00	+85 00 15	14.7	"	"	13 34	16 06	152	250	3						"	"		"		3/4 of Δ1 7
NV 1200	"	HD 21971	3 31 42	+63 09	8.5	G4	"	16 16	16 20	20,40 80s	✓	4						"	"		"		Δ1, Δ2c 120" Ap. T. Schmidt 8
01	"	HD 23141	+3 40 42	+26 14	"	K0	"	16 38	16 32	20,40 80	/	4						"	"		"		" " " " " " 9
N 1202	Mü	M31	0-40-38	+41° 3'			Oct. 10	7:08	10:25	197		1-4	A He	40+40 120+120			9	UV B 17°15'	3"	6.80	103a-O	0h43	5970 filter Stopped (p.9) 3h 0m.7 by clouds
03	"	M31	"	"			11	6:57	11:47	293	✓	1-2	"	"	90m 100m	#16	8	"	"	"	IIa-O bkd	0h42	" " Major axis NE. p.a. 36°.7
04	"	M31	"	"			12	7 23	12 57	334	✓	2-3	"	"	"		7	"	"	"	"	1h59	" " " " " "
N 1205a	SuRIK	RX And	01 02 19	+91 05	12.9	sdBe	Oct 13/14	6:48	7:08	28m	C/K	1-2	He 2o+2o				8	G3 B 7°50'	3"	6.70	IIa-O baked	4E11	1c cuffer (wedge sp)
b	"	"	"	"	"	"	"	7:11	7:26	15m	"	"	Ar 2o+2o				"	"	"	"	"	3E52	1
c	"	"	"	"	"	"	"	7:26	7:41	15m	"	"					"	"	"	"	"	3E38	1c lower
N 1206a	"	"	"	"	"	"	"	8:20	8:37	17m	"	2	He 2o+2o				"	"	"	"	"	2E41	1c cuffer
b	"	"	"	"	"	"	"	8:39	(8:42)	(3m)	X 4	"	Ar 2o+2o				"	"	"	"	"	2E36	1, Stopped by clouds
N 1207a	"	RX And	"	"	12.7v	"	Oct 14/15	6:30	6:51	21m	O/K	1	He 2o+2o A 2o+2o				"	"	"	"	"	4E46	1c cuffer
b	"	"	"	"	"	"	"	6:53	7:16	23m	"	"					"	"	"	"	"	4E33	1
c	"	"	"	"	"	"	"	7:16	7:35	19m	"	1-2					"	"	"	"	"	3E40	1c lower
1208a	"	"	"	"	"	"	"	7:43	7:58	15m	"	"	He 2o+2o				"	"	"	"	"	3E16	
b	"	"	"	"	"	"	"	8:00	8:15	15m	"	"	A 2o+2o				"	"	"	"	"	2E58	
c	"	"	"	"	"	"	"	8:17	8:37	20m	"	"					"	"	"	"	"	2E39	
1209a	"	"	"	"	"	"	"	8:42	9:02	20m	"	"	He 2o+2o				"	"	"	"	"	2E12	
b	"	"	"	"	"	"	"	9:05	9:25	20m	"	"	A 2o+2o				"	"	"	"	"	1E49	
c	"	"	"	"	"	"	"	9:26	9:46	20m	"	"					"	"	"	"	"	1E29	
1210a	"	"	"	"	"	"	"	9:52	10:12	20m	"	1	He 2o+2o A 2o+2o				"	"	"	"	"	1E02	
b	"	"	"	"	"	"	"	10:15	10:35	20m	"	1-0					"	"	"	"	"	0E39	
c	"	"	"	"	"	"	"	10:36	10:56	20m	"	1-0					"	"	"	"	"	0E18	
1211a	"	"	"	"	"	"	"	11:36	11:51	15m	"	1-2	He A	20+20			"	"	"	"	"	0W36	
b	"	"	"	"	"	"	"	11:54	12:11	17m	"	"		20+20			"	"	"	"	"	0W57	
c	"	"	"	"	"	"	"	12:11	12:26	15m	"	"					"	"	"	"	"	1W19	

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1960	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1212a	RPK	RX And	01 02 19	+41 05	12.7v	sdBe	Oct 14/15	12:39	12:54	15m	OK	1-2	He	40			8	63B 7°50'	3"	6.70	IIa-o baked	1W40	
b	"	"	"	"	"	"	"	12:56	13:11	15m	"	"	A	40			"	"	"	"	"	1W57	
1213a	"	AB Cam	03 42 50	+58 40	12.5	cF	"	14:41	15:21	40m	X1.5	1	He	40+40			"	64B 15°20'	"	"	"	0W45	
b	"	TV Cam	04 04 07	+60 13	~13	cF	"	15:28	16:08	40m	OK	1-2	A	40+40			"	"	"	"	"	1W52	
c	"	SU UMa	08 08 59	+62 44	~15	sdBe	"	16:30	16:55	25m	X 3	1-2					"	"	"	"	"		~~Stopped~~ Held hxad
1214a	"	DF Lac	22 19 47	+54 20	~13	cF	Oct 16/17	6:45	7:45	60m	OK	2	He	40+20+20			"	"	"	"	"	0E40	
b	"	CY Cas	23 27 05	+63 09	13.5	"	"	8:03	9:03	60m	OK	1+	A	40+20+20			"	"	"	"	"	0E28	
c	"	AB Cam	3 42 50	+58 40	~13	"	"	9:15	10:50	75m	OK	1-2					"	"	"	"	"	2E57	wide exp. 5s, 10s, 20s
1215	"	α Per	3 21 27	+49 43	1.9	F5Ib	"	10:58	(11:00)	—	OK						"	"	"	"	"		
1216	"	γ Cyg	20 20 48	+40 08	2.3	F8Ib	"	11:12	(11:14)	—	X2						"	"	"	"	4	4W50	
1217a	"	SS Aur	6 10 20	+47 45	15.0	sdBe +dG	"	12:57	13:42	45m	OK	2					"	63B 7°50'	"	"	"	2E31	
b	"	"	"	"	"	"	"	13:44	14:24	40m	OK	"					"	"	"	"	"	1E50	
c	"	"	"	"	"	"	"	14:25	15:10	45m	OK	"					"	"	"	"	"	1E04	wide exp.
1218a	"	"	"	"	"	"	"	15:16	15:46	30m	OK	"					"	"	"	"	"	0E32	} orientation as 1217.
b	"	"	"	"	"	"	"	15:48	16:18	30m	OK	"					"	"	"	"	"	0W04	
c	"	"	"	"	"	"	"	16:18	16:43	25m	OK	"					"	"	"	"	"	0W29	
1219	AS	NGC188 II-73	0 42 15	+85 04	15.7pg	G2	Oct 18/A	7:29	9:59	150	OK	3	He	40+40			"	"	"	6.90	"	0E40	
1220	"	" II-96	0 46 11	+85 03	"	"	"	10:37	13.17	160m	OK	"	"	"			"	"	"	"	"	2W31	
1221a	"	θ Per	2 41 16	+49 03	4.12	F7V	"	13:45									"	"	"	"	"		
b	"	π3 Ori	4 47 37	+6 53	3.16	F6V	"	13.51									"	"	"	"	"		
c	"	i Per	3 06 10	+49 27	4.04	G0V	"	13:50										"	"	"	"		
1222a		HR 483	1 39 20	+42 25	4.94	G2V	"	14:00										"	"	"	"		
b		λ Aur	5 16 19	+40 04	4.71	G0V	"	14:03										"	"	"	"		
c		κ Cet	3 17 15	+3 13	4.82	G5V	"											"	"	"	"		
1223		M67 # 225	8 49 37	+11 53	13.6pg	F8	"	14:50	15:20	30m	✓	2	He	40+40				"	"	"	"	3E26	
1224		M67 #132	8 49 15	+11 53	13.7	"	"	15.32	16:02	30m	✓	2	"	"				"	"	"	"	2E44	
1225		M67 #127	8 49 16	+11 55	13.3	"	"	16:16	16.46	30m	✓	2						"	"	"	"	2E09	
1226a		11 Leo Mi	9 33 15	+35 59	5.47	G8	"											"	"	"	"		
b		36 UMa	10 28 04	+56 11	4.82	F8V	"											"	"	"	"		
1227a		γ Dra	18 21 47	+72 43	3.58	F7V	Oct 19/20											"	"	6.80	"		
b		16 Cyg A	19 40 46	+50 26	5.96	G2V	"											"	"	"	"		
c		16 Cyg B	"	"	6.20	G5V	"											"	"	"	"		
1228a		i Peg	22 05 07	+25 09	3.76	F5V	"											"	"	"	"		
b		υ Peg	23 23 23	+23 11	4.38	F8IV	"											"	"	"	"		
c		N Cas	0 46 39	+57 36	3.45	G0V	"											"	"	"	"		
1229		NGC188 II-27	0 39 35	+84 59	15.4pg		"	8:09	11:09	180m	✓		He	40+40				"	"	"	"	0W36	
1230		NGC188 II-2	0 41 48	+84 58	16.0pg		"	11:33	14:39	180m	✓			"				"	"	"	"	4W07	
1231a		50 And	1 34 20	+41 12	4.08	F8V	"	14:58										"	"	"	"	3W22	
b		ST Ari	2 14 36	+34 02	4.87	G0V	"	15:07										"	"	"	"	2W17	
c		HR 483	1 39 20	+42 25	4.94	G2V		15:20										"	"	"	"	3W50	

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1960	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
1232a	AS	K Cet	3 17 15	+3 13	4.82	G5 V	Oct 19/20										8	63B 7°50'	3"	6.80	blkd II a O		
b	|	i Per	3 6 10	+49 27	4.04	G0 II	"										"	"	"	"	"		
1233	|	M67 # 94	8 49 11	+11 58 30	13.4pg		"	15:52	16:22	30m	✓	3	He 40+40s				"	"	"	"	"		
1234a	|	11 Leo Minor	9 33 15	+35 59	5.47	G8 V	"										"	"	"	"	"		
b	|	36 UMa A	10 28 04	+56 11	4.82	F8 V	"										"	"	"	"	"		
1235a		16 Cyg A	19 40 46	+50 26	5.96	G2 V	Oct 20/21										"	"	"	"	"		
b		16 Cyg B	"	"	6.20	G5 V	"										"	"	"	"	"		
c		η Cas	0 46 39	+57 36	3.45	G0 V	"										"	"	"	"	"		
1236		3C 48	1 35 35	+32 56 42	~16		"	8:16	8:45	30m	✓	3	He 15s+Ne 5s				14	98B 40 40'	1.4"	6.90	103a F(3)	2E39	
1237		NGC 2685	8 52 36	+58 51	~12		"	14:30	16:30	120m	✓	3	He 30+30, A 20s				"	"	3"	6.90	"	2E10	Position angle 55° (along major axis)
1238		3C 48	1 35 35	+32 56 42	~16		Oct 21/22	6:52	8:52	120m	150%	3	He 15+20				9	"	3"	6.85	IIa O blkd.	2E29	
1239		Q0024+1653	0 24 30	+16 53	~20		"	9:45	14:15	270m	✓	3-1	He 15+A15+N5				14	"	1.4"	"	103a D	4W25	
1240		M67 #83	8 49 08	11 54 40	13.8pg		"	14:54	15:44	50m	✓	1+	He 40+40				8	63B 7°50'	3"	"	IIa O	2E45	
1241		M67 # 147	"	"	13.9pg		"	15:56	16:34	38m	✓	1+	" "				"	"	"	"	"	2E00	
N 1242	Z	M_{32}	0-40-00	+40°36'			Oct 21/22	8:04	8:10	6m	✓	4	He 15+15				9	48B 3°30'	3"	6.88	103a-O	1E59	Moon. Base 90°
1243	"	#31 of Cluster	1-21-26	−1°53'34"			"	9:11	9:20	120m	✓	4	"				11	"	"	"	"	0W29	Base 180. cl 0123-0138
1244	"	#32 " "	1-21-38	−1°54'44"			"	11:49	1:49	120m	✓	4	"				11	"	"	"	"	3W00	Base 0°. (Also star) (")
1245	"	Anon 4, Cancer cl.	8-16-51	+21°41 0"			"	3:49	4:49	60m	180m	4	"				11	"	"	"	"	0E56	Base 180°
1246	"	M_{32}	0-40-00	+40°36'			Oct 16/17	6:46	6:48	2m	✓	2+	"				9	"	"	"	"	3E18	" 90° (Moon)
1247	"	#37a Cl 0123-0138	1-24-18	−1°14'04"			"	7:21	8:21	60m	✓	2+	"				11	"	"	"	"	2E28	" 180° (Probably star)
1248	"	#36 " "	1-20-49	−1°10'04"			"	10:17	0:17	120m	✓	3	"				11	"	"	"	"	1W32	" 280°
1249	"	#39 " "	1-24-50	−1°25'26"			"	0:37	2:07	90m	✓	3	"				11	"	"	"	"	3W18	" 280°
1250	"	Anon 5, Canes Cl.	8-17-16	+21°18'46"			"	2:42	4:42	120m	✓	3	"				11	"	"	"	"	1E00	" 270°
1251	"	#51 Cl 0123-0138	1-24-46	−2°13'44"			Oct 27/28	8:26	9:26	60m	✓	2+	"				11	"	"	"	"	1E22	" 180° (Moon)
1252	"	#45 " "	1-26-07	−1°59'29"			"	9:39	10:39	60m	✓	2+	"				"	"	"	"	"	0E08	" 180° "
1253	"	Supernova	8-16-57	+22°11' 15"			"	1:08	4:38	180m	✓	0-2+	"				"	"	"	"	"	1E0	" 161° [Interrupted Exposure]
1253a	"	NGC 2565	"	"			"	"	"	"	"	0-2+	"				"	"	"	"	"	1E0	" 161° "
1254	JG	L879-14	4 35 24	−8 53	13.5	DC	Oct 28/29	13:25	14:55	90m	120	2	Ne 5+5 He 20+20		W3		9	98B 4-40	4"	6.88	IIa F	1W03	Δ1 Brite sky. Aurora??
1255	"	SN Gomes #1	8 23 56	+21 36	16.5	Pec.	"	15:22	16:45	83m	✓	3-4	He 15+30		—		11	3°30	3"	"	IIa O Blkd	0E59	Base 51°; Galaxy + SN in D2. Extinct without
1256	"	G-5-35	3 22 04	+12 05	11.3	Comp	Oct 29/30	13:35	13:55	20		2	He 20+20 Na 5+5		W2		9	40	"	"	IIa F	1W20	Δ2 Moon Brite
1257	"	L879-14	4 35 24	−8 53	13.5	DC	Oct 29/30	14:20	16:48	148	✓	1	"		W2		10	"	"	"	"	3W30	Δ1 Aurora?
1258	"	Feige 24	2 32 30	+3 31	12.3	D	Oct 30/31	15:30	16:00	30	✓	2	"		W1		10	61	"	"	"	4W08	Δ1
1259	"	Feige 24	2 32 30	+3 31	12.3	"	"	16:04	16:19	15	Thin	2	"		W1		10	"	"	"	"	4W38	Δ1
N 1260	Mv	M31	0:40:38	+41° 03'			Nov 8/9	6:41	9:11	150m		2	Ne 3+3s		60m 100m #10		8	114B 13°15' 119B	3"	6.78	103a-E	0E04	OG filter, p.a. 306°.7 minor axis p.a. 216°.7 major axis
1261	"	"	"	"			" 9/10	6:35	10:35	240m		1	He+A 1m+1m		90m 100m 6 #16		8	16°45 64B	"	"	IIa-O6	1W25	
1262	"	Orion Neb.	5:33:48	−5°25'55"			10/11	13:13	13:53	40	✓	2-3	He	30s	60m 100m #16		9	16°25' 119B	"	"	"	0E05	Through cond. #1, S of Θ_2, NS
1263	"	M81	9:52:46	+69°14			"	15:00	17:00	120		3	Ne	5+3	—		8	18°15'	"	"	103a-E	1E18	Em nf 5486 p.a. 320°.5 Δ2
1264	"	3C 48	1:35:25	+32°57'			11/12	6:46	13:20	6h30m	✓	2-3	He	15+15			9	63B 7°35'	"	"	IIa-O6	3W25	Δ1 trailed moonlight !!
1265	"	Orion Neb	5:33:48	−5°25'55"			"	13:53	14:35	42		2	He	15+15			9	64B 15°30'	"	"	"	0W42	Through cond #1, S of O_2, NS
1266	"	M81	9:51:51	+69°12'				15:25	17:10	105m	✓	2-1	He A	15+15 +K3 30+30 +UG2			8	119B 17°35	"	"	"	1E02	sp Em 48x10 p.a. 299°.3

CHARLES E. MAGLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, SAN JOSE, ORLANDO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	1960 DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1267	Z	IC52 in cluster	1-21-11	-2°05'20"	–	–	20/21 Nov	6:28	7:38	70m	✓	1-2	kettle	15+15			11	98 B 3°30'	3"	6.88	103a-O	1E30	Cluster 0123-0138 Base 180°
1268	"	IC22 " "	1-19-55	-1°08'10"	–	–	"	8:07	10:07	120m	✓	2	"	"			"	"	"	"	"	1W00	" " " "
1269	"	IC34 " "	1-23-52	-2°03'0"	–	–	"	10:24	0:24	120m	✓	3	"	"			"	"	"	"	"	3W14	" " " " 2700
1270	"	Emission Neb.	6-34-18	+24°03'	–	–	"	2:01	2:11	10m	✓	3†	"	"			10	"	"	"	"	0E09	Base 270°
1271	"	Arrow Galaxy	8-17-20	+20°58'40"	–	–	"	2:34	5:04	150m	✓	4	"	"			11	"	"	"	"	1W01	" 270°
1272	"	Messier 32	0-40-0	+40°36'	–	–	21/22 Nov	6:10	6:12	2m	✓	2†	"	"			10	"	"	"	"	2E11	" 180°
1273	"	IC41 in cluster	1-25-14	-1°23'50"	–	–	"	6:32	7:32	60m	✓	2†	"	"			11	"	"	"	"	1E36	" 180° Cl 0123-0138
1274	"	IC46 " "	1-25-45	-2°10'50"	–	–	"	7:52	8:52	60m	✓	3	"	"			"	"	"	"	"	0E16	" 180° " " "
1275	"	IC37[a] in cl. field	1-24-23	-1°13'50"	–	–	"	9:14	9:54	40m	✓	3	"	"			"	"	"	"	"	0W46	" 180° " " "
1275[a]	"	"	"	"			"	9:55	9:57	2m	10m	3	"	"			"	"	"	"	"	0W49	" 180° " " "
N1276	RK	U Gem	7 52 44	+22 07	14.0	sdBe	Nov 27/28	13:33	14:25	30m	OK	1	He	40+40			8	63B 7°50'	3"	6.90	IIa-baked	0E45	wide IIIJ9
b	"	"	"	"	"	"	"	14:27	14:59	32m	OK	1	A	40+40			"	"	"	"	"	0E14	
c	"	"	"	"	"	"	"	15:00	15:30	30m	OK	1					"	"	"	"	"	0W20	
1277a	"	"	"	"	"	"	"	15:37	16:07	30m	OK	1-2	He	40+40			"	"	"	"	"	0W56	
b	"	"	"	"	"	"	"	16:09	16:39	30m	OK	1	A	40+40			"	"	"	"	"	1W28	
c	"	"	"	"	"	"	"	16:40	17:10	30m	OK	1					"	"	"	"	"	1W53	
1278	Mw	M31	0-40-38	+41° 3'	–	–	Dec 18/19	6:43	11:10	267m	✓	1–	A	2+2			8	119B 17°15'	3"	6.80	IIa-baked (X1J9)	4W13	sp major axis 150" from nucleus
79	"	Orion Neb	5-33-25	-5°26'	–	–	"	11:50	12:30	40m	✓	1	He	1m	30m	30m #16	9	69B 17°30'	"	"	"	0W39	p.a. 0° through Nebula 1 λ4363 two screen
80	"	"	"	"	–	–	"	12:53	13:33	"	under	1–	"	"			"	17°0'	"	"	"	1W48	N1 5-10 screen
81	"	"	"	"	–	–	"	14:09	14:49	"	✓	"	"	"			"	17°0'	"	"	"	2W37	Hδ+Hγ 457 screen
82	"	"	"	"	–	–	"	14:59	15:39	"	"	"	"	"			"	15°30'	"	"	"	3W47	8m overexp. 4471 4363 2.03 m screen
83	"	M31	0-40-38	+41°3'	–	–	13/14	6:22	10:22	240m	✓	2-3	A He	2½+½½ 2½+½½	180"	160"+110	9	119B 17°15'	"	"	"	2W25	p.a. 255°.7 nucleus E end of slit.
84	"	M81	9-52-46	+69°14'			"	15:00	17:00	120m	✓	3	Ne	5+5				18°15'	"	"	103a-E	0W52	41".3 Em of #10 & 11.
85	"	M31	0-40-38	+41°3'	–	–	14/15	6:21	10:21	241m	✓	2	A He	3+3				119B 17°15'	"	"	IIa-O baked	3W29	p.a. 22°.3 nucleus sp end of slit.
86	"	Orion Neb	5-33-25	-5°26'	–	–	"	10:59	11:29	30m		2-3	He	2m	30m		9	69B 15°30'	"	"	"	0E21	3N through neb 1
87	"	" "	"	"			"	11:36	12:06	"		"	"	"				69B 17°15'	"	"	"	0W22	404 mag screen
1288	Sc	Supernova #23	1 03 55	+31 11	~17		15/16	7:58	9:28	90m	✓	2-3	He	17+17			10	82B 3°30'	3"	6.80	103aD	2W16	Base 240° Comparison star identified later: companion, supernova, galaxy
89	"	NGC545	1 31 18	+30 29	Em		"	10:33	13:25	152m		2-3	He	5			12	82B 5°15'	1½	"	103aF(3)	5W26	
90	"	M81 Em #2	9 52 23	+69 16			"	13:42	17:12	198m		2-3	"	"			"	"	"	6.90	"	1W01	
91	"	3C-33	1 08 26	+13 07			16/17	7:16	10:36	220m		2-1	"	25			8	42.5°	3"	6.85	"	3W25	
92	"	M81 Em #1	9 52 23	+69 16			"	11:30	17:10	340m		1-3	"	5			7	5°15'	1¼	6.90	"	1W13	
93	"	NGC588	1 30 47	+3 27			17/18	6:30	13:10	400m		3-2	"	"			12	"	"	"	"	5W40	
1294	JLG	3C48	1 35 06	+32 54	Obje	16	Dec 19/20	7:04	13:04	360	✓	<1	He A	25-25 B-A	W1	-90m	9	63 B 7°50'	3	6.80	IIa O Baked	5W36	No Moon A1 Clouds. Brite sky (city lights).
95	"	L743-3 A,B	7 21 09	-15 20	sdF	12	"		13:32	12	✓	<1	"	"	#4	20cm	9	"	"		"	0W37	" ½ Δ1c. streak is star A Base 180
96	"	Ton. 320	8 23 48	+31 42	Ob	15.5	"		14:32	168	✓	<1	"	"			11	"	"	"	"	3W04	" 14 Barium Δ1c appears at top of plate
1297	JLG	G3-33	1 57 00	+12 49	14	dMe	Dec 20/21	9:06	9:48	42		<1	"	"	W1		9	"	"	"	"	2W02	Clouds No Moon A1. Positron Doublet 1
98	"	Feige 22	2 27 42	+ 5 03	12.5	DA	"	10:17	11:07	50		<1	"	"	W1		9	"	"	"	"	2W52	" Δ2
99	"	G5-35	3 22 04	+12 05	11	sdG	"	11:22	11:35	13		1	"	"	W1		9	"	"	"	"	2W24	Δ2
1300	"	G38-29	4 17 00	+36 09	15	DA	"	11:53	14:32	159		<1	20-20 7-7		W1		11	"	"	"	"	4W21	Δ1
1301	"	LFT542	7 37 02	+72 58	14	sdG	"	15:01	16:11	70		<1	"	"	W1		11	"	"	"	"	3W13	Δ1 Identity doublet

1961

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 1302	Z	Galaxy 48 in Cl.	1-23-19	−1°45′50″			Jan. 9/10	6:55	8:55	120m	✓	2+	He+H	15+15s			11	98B 3°30′	3″	6.78	103a-O	3W01	Member of Cl 0123−0138, Base 270°
1303	"	NGC 2557	8-16-16	+21°36′42″			"	10:21	11:21	60m	✓	2+	"	"			"		"	"	"	1E25	Member of Cancer Cluster. Base 180°
1304	"	" 2558	8-16-22	+20°40′18″			"	11:35	0:20	45m	✓	2+	"	"			"		"	"	"	0E25	" " " " " 180°
1305	"	" 3317	10-35-32	−26°49′			"	2:03	2:48	45m	✓	1	"	"			"		"	"	"	0E15	" " Hydra I Cl. Moon,
1306	"	Galaxy 38 in Cl	1-24-02	−1°22′30″			Jan. 10/11	6:19	8:49	150m	✓	1−	"	"			11		"	"	"	3W00	" " Cl 0123−0138, Base 270°
1307	"	" 45 " "	1-26-07	−1°59′40″			"	9:07	10:07	60m	150m	1	"	"			12		"	"	"	4W16	" " Cl 0123−0138, " "
1308	"	NGC 2595	8-24-50	+21°38′48″			"	10:28	11:58	90m	✓	1-2	"	"			11		"	"	"	0E51	Base 270° " " Cancer Cl. Defective Plate
1309	"	" 2553	8-14-38	+21°5′8″			"	2:57	3:07	70m	✓	1	"	"			"		"	"	"	3W28	" " " Moon
1310	"	Galaxy 45 in Cl.	1-26-07	−1°59′40″			Jan. 11/12	6:23	8:53	150m	✓	2	"	"			"		"	"	"	3W06	Member of Cl 0123−0138, Base 155°
1311	"	" 47 " "	1-22-55	−1°27′20″			"	9:12	10:19	67m	150m	1-2	"	"			"		"	"	"	4W35	" " " " 270°
1312	"	NGC 2556	8-16-05	+21°7′36″			"	10:49	11:34	45m	✓	2+	"	"			"		"	"	"	1E04	" " Cancer Cl. " 270°
1313	"	NGC 2569	8-18-26	+21°1′30″			"	0:57	1:57	60m	✓	2+	"	"			"		"	"	"	1W18	" " " " " 180°
1314	"	" 3316	10-35-26	−27°20′			"	2:15	3:00	45m	✓	2	"	"			"		"	"	"	0W15	" " Hydra I Cl. Moon, "
N 1315	DLG	SN NGC 4382	12-22-48 1950	+18 22	14.5	Q	Jan 17/18	13h04	14h04	60	✓	2	He Ne	10+10 2+2	W1		9	98B 40 40	3″	6.75	103aF3	2E16	Δ1 Heavy Clds. Sky bright
1316	"	SN NGC 4382	"	"	13.5	Q	"	14h27	16h15	108	✓	3	He Ne	30+30 20+20	W2		9	63B 70 50	"	"	IIa-O 849	0E04	Δ1 " " " "
1317	"	Hz 22	12 12 16	+36 56	13	B3	"	16h35	16h56	21	15	2	"	"	W2		9	"	"	"	"	0W48	Δ1 " "
1318	"	LNGP 1	12 10 06	+26 54	13	Ap	"	17h09	17h32	23	18	2	"	"	W2		9	"	"	"	"	1W26	Δ1 " "
1319	"	3C 48	1 35 06	+32 54	16	P	Jan. 18/19	7h52	10h01	129	NG	1	He 20+20 Ne 2+2		W1		10	98B 50 0	"	"	103aF3	4W11	Δ1 Heavy Clds NG
1320	"	3C 48	1 35 06	+32 54	16	"	Jan 19/20	6h40	8h05	85	NG	<1	"	"	W1		10	"	"	"	"	2W19	Δ1 Moon, Heavy Clds NG
N 1321a	RPK	U Gem	7 52 44	+22 07	14.0	sdBe	Feb 7/8	10:37	11:06	29m	X 2	0-1	He 40+40 A 40+40				8	63B 70 50′	3″	6.80	IIa-O Babcl	0W40	wide spectrum
b	"	"	"	"	"	"	"	11:12	(11:35)	23m	X 2	0					11	"	"	"	"	1W08	Stopped by fog
1322a	"	X Leo	9 48 53	+12 04	15.0	"	"	15:00	15:59	59m	X 2	0	He 80				4	"	"	"	"	3W56	Prob. some moonlight contamination
b	"	"	"	"	"	"	"	16:02	17:00	58m	X 2	0	A 80				"	"	"	"	"	4W38	
1323a	"	U Gem	7 52 44	+22 07	14.0	sdBe	Feb 8/9	6:48	7:48	(60m)	OK	1	He 40+40				11	"	"	"	"	2E36	clouds, Stopped by clouds
b	"	"	"	"	"	"	Feb 9/10	6:32	7:00	28m	OK	2	A 40+40				"	"	"	"	"	3E20	
c	"	"	"	"	"	"	"	7:00	7:30	30m	"	2					"	"	"	"	"	2E50	
1324a	"	"	"	"	"	"	"	7:38	8:09	31m	"	2	4				"	"	"	"	"	2E11	
b	"	"	"	"	"	"	"	8:12	8:44	32m	"	2					"	"	"	"	"	1E35	some thin clouds
c	"	"	"	"	"	"	"	8:44	9:14	30m	"	2					"	"	"	"	"	1E06	
1325a	"	"	"	"	"	"	"	9:20	9:51	31m	"	2	4				"	"	"	"	"	0E29	
b	"	"	"	"	"	"	"	9:53	10:23	30m	"	2+					"	"	"	"	"	0W03	
c	"	"	"	"	"	"	"	10:23	10:54	31m	"	2+					"	"	"	"	"	0W34	
1326a	"	"	"	"	"	"	"	11:54	12:26	32m	"	3	4				"	"	"	"	"	2W06	
b	"	"	"	"	"	"	"	12:26	12:55	29m	"	3					"	"	"	"	"	2W36	
c	"	"	"	"	"	"	"	12:55	13:26	31m	"	3					"	"	"	"	"	3W07	
1327a	"	"	"	"	"	"	"	13:39	14:12	33m	"	2	"		Pl #2 #10,5m		"	"	"	"	"	3W54	
b	"	"	"	"	"	"	"	14:12	14:39	27m	"	2					"	"	"	"	"	4W21	
c	"	"	"	"	"	"	"	14:39	15:09	30m	"	2					"	"	"	"	"	4W50	
1328	Z	Anon star	1-24-23	−1°13′50″	17		Feb. 10/11	6:49	7:19	30m	O.K	2+	He+H	30+30			9	63B 70 20′	3″	6.80	103a-O	3W30	near #37 of Cl 0124−0138 Base 270°
1329	"	2 Stars in Dwarf	6-50-07	+16°14′45″			"	8:00	10:00	120m	"	3	"	"			"	"	"	"	"	0W47	Star Nos. 1, 2 in Dwarf Galaxy. " 248

Moon + cirrus

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NO.	OBS.	OBJECT	R. A. 1960	DECL. 1950	MAG.	SP.	DATE 1961	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1367	ATD	M87	12:28,8	+26°00'	10.9		May 15	9:24	10:19	55		2-3	Ne	6-6	A, 25m		2+10	10A B 16°30'	1.4	7.05	IIa-D	W 1:37	#19, Base 0°.
68		M60	12:41.7	+11 46	10.6			11:46	12:58	72		2	"	8+8	B, 25m		2+12		"	"	"	W 4:05	" "
69								13:17	13:25	8			"	"	B		"					W 4:38	" "
70								13:35	13:42	7		2-3	"	"	B		"					W 4:58	" "
71		8² Lyr	18:53:06	+36 51	M4	4.5		15:45	15:47	2		3	"	"	—		"		"	"	"	W 0:43	" ", 4.57 way. screen
72	ATD	NGC 3115	10:03:12	−7 31	9.8		May 17	8:28	7:08	30		3	Ne	6-10	A, 25m		"	16°45'	64	7.05	IIa-D	W 2:00	" Base 314°.
73		M96	10:44:12	+12 05	7.0?			9:40	10:12	32		3	"	"	A							W 3:22	" " 0°.
74		M87	12:28:48	+12 37	10.7			10:26	11:44	78		2	"	"	A							W 3:11	" " "
75		NGC 4406	12:24:12	+13 10	10.9			12:03	13:39	96		2	"	"	A							W 5:11	" " "
76	ATD	SN NGC 4564	12:34.5	+11 39	11.5		May 18	8:31	8:50	19		2	Ne	10-10	A, 25m		2+12	63 B 12°00'	1.4	7.05	IIa-D	W 0:15	— " 270.
77		NGC 3115	10:03:12	−7 31	9.8			9:08	9:32	24		2			A, 25m							W 3:28	— " "
78		M85	12:23:24	+18 25	10.9			9:46	10:30	44		2			B, 25m							W 2:06	— " "
79		SN, NGC 4564	12:34.5	+11 39	11.5			10:44	11:11	27		1-2			B							W 2:57	— " "
80		M84	12:23.0	+13 06	10.7			11:22	12:05	43		1			B							W 3:42	— " "
81		NGC 4494	12:29:24	+26 00	10.4			12:16	13:15	59		1			B							W 4:45	— " "
82		NGC 5866	15:05:24	+55 55	10.9			13:53	15:19	104		1			B							W 4:14	— " 33°
83		8² Lyr	18:53:10	+36 50	M4.5	M4		15:37	15:41	4					B							W 0:43	— " 90°, Δm = 4.57
N1384	Sc	SN NGC 4303	12 19 46	+ 4 41			June 8	8:56	9:31	35		3	He	4+4			9	42 B 4°40'	3"	6.80	103aF	W 2:33	Base 270°, 2 trails E→W
85		SN NGC 4564	12 34 14	+11 39			"	10:56	11:22	26		3	"	"			"	"	"	"	"	W 3:40	" " , 1 trail E→W first half SN See. dkly nucleus, glow
86		NGC 5471	14 02 49	+54 34		Em	"	11:14	11:39	25		3	"	2+2			13	"	14"	7.20	103aF	W 2:50	" 90°.
87		"	"	"		"	"	13:01	13:21	20		3	"	4+4			7	"	3"	6.80	~~IIaD~~ IIaD Bkd	W 4:41	" " "
88		NGC 5866	15 05 09	+55 54			"	13:50	15:10	80		3	"	4+4			7	"	"	"	"	W 5:26	" 303°. In dark band. Very weak.
89		3C 280, a	12 55 00	+47 35	19		June 9	8:49	13:49	300		4-2	"	2+2			13	"	14"	7.20	IIaD Bkd	W 6:21	" 90°.
90		3C 298, a	14 18 56	+ 6 39	19½		June 10	9:00	10:30	90		3	"	4			15	"	14"	"	103aF	W 1:43	" 0°±180°.
91		NGC 5461	14 02 02	+54 29		Em	"	10:56	12:56	120		3-2	"	4			15	"	"	"	"	W 4:25	" 62°.
92		NGC 5866	15 05 09	+55 54			"	13:25	15:10	105		2-3	"	8			7	"	3"	6.80	103aF	W 5:35	" 303.5. Just south of dark band.
93		3C 280, a	12 55 00	+47 35	19		June 11	8:43	11:15	152		3-2	"	8			9	"	"	"	103aD	W 5:53	" 0°. Nearly obs. and swamped by dark Eff. exp. 40"
94		3C 280, a	12 55 00	+47 35	19		June 12	8:29	13:29	300		5-4	"	15			9	"	"	"	IIaD Bkd	W 6:12	" 0°
95		NGC 5461	14 02 02	+54 29		Em	"	13:52	14:52	60		3	"	15			7	"	"	"	"	W 6:17	" 62°
N1316	Z	SN in NGC 4303	12-19-46	+4°41' 10"			June 13/14	8:27	8:57	30m	20m	3+	"	35+35			9	63 B 7°30'	3"	6.78	103a-O	W 2:18	Base 270° one Trail E-W
1397	"	SN in NGC 4564	12-34-14	+11°39' 10"			"	9:11	9:47	36m	o.k.	3+					9	"	"	"	"	W 2:55	" Supernova one trail E-W
16	"	" " "	"	"			"	9:49	10:49	60m	o.k.	3+	"	35+35			9	"				W 3:56	" Nucleus of NGC 4564
1398	"	NGC 7177 (SN 18)	21-58-28	+17°29' 6"			"	0:46	2:16	90m	✓	3					9	"	"	"	"	W 2:00	"
1399	"	SN in NGC 4303	12-19-46	+4°41' 10"			June 14/15	8:37	8:52	15m	✓	3					9	"	"	"	"	W 2:17	" One trail E-W. 1 min sleep.
1400a	"	SN in NGC 4303	12-19-45	+4°41' 10"			"	9:05	9:06	1m	3	3	He	80+80			9	"	"	"	IIa-O	W 2:31	"
b		SN in NGC 4564	12-34-14	+11°39' 10"			"	9:11	9:13	2m	9	3										W 2:25	"
1401	"	SN in NGC 4564	12-34-14	+11°39' 10"			"	9:25	10:06	41m	✓	3	35³+35³				9	"	"	"	103a-O	W 3:18	"
1402	"	SN 34 Kearns	16-9-47	+29°42' 11"			June 15/16	11:53	15:00	187m	✓	3	15³+15³				11	98 B 8°30'	3"	"	"	W 4:40	"
N1403	JLG	SN NGC 4303	12 19 46	+04 41 10	13.5	P	June 16/17	8:32	8:58	26		5	He	60+30		W1	9	63 B 7°30	3"	6.80	IIa-O Bkd	W 2:00	Base 180 Δ1 Moon
1404	"	"	"	"	"	"	"	9:10	9:36	26		"	He 3+3+30 Ne 15+15			—	11	53 B 1°40	"	"	103aF	W 3:00	" Δ1 "

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(Z 1950)

NO.	OBS.	OBJECT	R. A. 1960	DECL.	MAG.	SP.	DATE 1961	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1405	JLG	Her A-Nuc. C	16 48 58	+5°03 40	18?	Em.	June 16/17	10^{25}	15^{00}	245	400	5	He 30	+20	W1		11	98B	3"	6.90	IIa-0 Brd	4^{W}15	pa 128°, ff star held 4' N of slit, Held only a short time
1406	"	Abell 78	21 33 48	+31 31	12.7	Ob	"	15^{25}	15^{38}	13	6/25	"	—		—		9	3°30 98B 4°40	α	6.90	IIIa-0 F	0^{E}12	Very bright sky (aurora??) Dewar at top of slit
1407	"	Her A-Nuc. C	16 48 58	+5 03 40	18	Em	June 17/18	10^{45}	15^{00}	255	✓	2	—		—		10	98B	3"	"	IIa-0 Brd	4^{W}08	same as #1405 (aurora?) star A at top of slit
1408	"	L845-70	17 09 05	-14 46	14.3	DC	June 18/19	11^{27}	13^{07}	100	✓	3	He 30	+30	W2A		9	3°45 62B 7°30	3"	"	IIa-0 Brd	2^{W}00	Δ2
1409	"	Abell 78	21 33 48	+31 31	0b13	Obe	"	13^{23}	13^{36}	13	✓	3	"				9	"	"	"	"	1^{E}56	Δ2
1410	"	Ton. 261	16 44 55	+26 42	16	Ob	"	13^{36}	15^{13}	77	✓	4	"				11	"	"	"	"	4^{W}30	2/3 Δ1
1411	JLG	Ton. 197	14 21 55	+31 47	15.2	DA	June 19/20	11^{50}	13^{02}	72	✓	3	He 30	+30		W3 75^{m}	9	"	"	6.85	IIa-0 Brd	4^{W}46	Δ1
1412	"	G92-6	19 27 43	+0 56	12.5	Ab	"	13^{20}	13^{28}	8	✓	3	"		"		9	"	"	"	"	0^{W}07	Δ1
1413	"	G92-40	19 54 27	-1 09	14.5	DA	"	13^{41}	14^{21}	40	✓	3	"		"		9	"	"	"	"	0^{W}33	Δ1
1414	"	G93-48	21 50 23	+2 12	13.9	DA	"	14^{34}	14^{57}	23	✓	3	"		"		9	"	"	"	"	0^{E}47	Δ1
N1415	JLG	SN-NGC 4303	12 19 46	+4 41	~13.5	Pec	July 3/4	8^{57}	10^{00}	63	✓	<1	He 30	+30	W1	75^{m}	9	63B 7°30	3"	6.85	IIIa-0 Blue	4^{W}42	Δ1; SkY very bright
1416	"	Stephenson 9	14 01 28	+28 51	13.9	O	"	10^{16}	11^{10}	54	✓	1	"		"		c	"	"	"	"	4^{W}10	Δ1
1417	"	Giclas 63-26	13 22 35	+20 40	11.5	sdG	July 4/5	8^{36}	8^{47}	11	✓	<1	He 30	+30	W1		9	"	"	"	"	2^{W}30	Δ1
1418	"	Stephenson 10	14 08 39	+29 01	12.8	sdB	"	8^{57}	9^{21}	24	✓	1	"		"		9	"	"	"	"	2^{W}8	Δ1
1419	"	SN-NGC 4303	12 19 44	+4 41	13.5	Pec	"	9^{30}	10^{32}	62	90	<1	He 20 Ne 20	+20 +75	W2		11	98B 4°40	"	"	IIIa-0 F	3^{W}18	Sky Brisot Δ1
1420	"	Ross 640	16 27 08	+36 20	14.2	DF	"	16^{50}	17^{45}	55	x2	1	"		"		9	"	"	"	"	2^{W}23	Δ2
1424	"	Abell 78	21 33 48	+31 31	12.5	Obe	"	11^{55}	12^{34}	36	x2	1	"		"		9	"	"	"	"	1^{E}55	Δ2 ($t_{1/2}$ = 24^{m}, $t_{1/2}$ = 36^{m})
N1422	Z	Galaxy, Anon	12-22-32	+28°50'10"			5/6. VII.	8^{38}	10^{08}	90^{m}	✓	2	He 17	+17			11	98B 5°30'	3"	6.78	IIIa-0	4^{W}55	Seat of supernova (Humason No. 15) Base 270°
1423	"	Double galaxy	15-32-12	+15°21'			"	10^{27}	0^{27}	120^{m}	80^{m}	2-3	"	"			"	"	"	"	"	4^{W}04	Base 239°
1424	"	Anon Galaxy	12-24-24	+48°33'51"			6/7. VII.	8^{40}	10^{10}	90^{m}	110^{m}	2	"	20^{s}	+20^{s}		"	"	"	"	"	4^{W}58	Seat of SN No. 14 Base 90°
1425	"	Double Galaxy (NC)	16-2 -12	+14°56'			"	10^{38}	0^{38}	120^{m}	90^{m}	2-3	"	"	"		"	"	"	"	"	3^{W}49	North Component of double. Base 0°
1426	"	Anon Galaxy SN 33	16-9 -47	+29°42'11"	19.5		7/8. VII.	9^{10}	11^{30}	140^{m}	300^{m}	2	"	22^{s}	+22^{s}		"	40°	"	"	103a-D	2^{W}37	supernova Kearns, Base 213°
1427	"	Anon galaxy	22-13-56	+33°46'26"			"	11^{57}	2^{00}	125^{m}	180^{m}	2-3	"	"	"		"	40°	"	"	103a-O	1^{E}15	new Stephan's Quintet Base 270°
1428	"	" "	" "	"			8/9. VII.	0^{13}	2^{43}	150^{m}	✓	3	"	15^{s}	+18^{s}		12	"	"	"	"	0^{E}30	" " " "
1429	"	Anon galaxy SN 35	12-00-47	+16°43'15"	17.?		9/10. VII.	8^{40}	10^{05}	85^{m}	120^{m}	2-3	"	18^{s}	+18^{s}		11	3°30	"	"	"	5^{W}21	SN and nucleus Base 243°
1430	"	" " SN 33	16-09-41	+29°40'30"	20.0		"	10^{21}	0^{21}	120^{m}	240^{m}	2-3	"	15^{s}	+18^{s}		12	"	"	"	"	3^{W}36	SN and galaxy. Base 213°
1431	"	NGC 7320	22-34-01	+33°46'35"			"	0^{37}	2^{37}	120^{m}	180^{m}	2	"	"	"		12	"	"	"	"	0^{E}33	Stephan's Quintet " 270°
N1432a	RPK	WZ Sge	20 05 50	+17 34.5	15.5	sdBe	July 10/11	8:38	9:17	39^{m}	X1.5	2	He 40	+40			8.5	63B 7°50'	3"	6.70	IIa-0 baked	3^{E}20	wide exp first. Trailed N-S.
b	"	"	"	"	"	"	"	9:23	10:02	39^{m}	X1.5	2					"	"	"	"	"	2^{E}35	
c	"	"	"	"	"	"	"	10:03	10:41	38^{m}	OK	2-3					"	"	"	"	"	1^{E}55	
1433a	"	"	"	"	"	"	"	11:48	12:12	44^{m}	OK	2-3	He 40	+40			9	"	"	"	"	0^{E}15	orientation as 1432.
b	"	"	"	"	"	"	"	12:15	13:00	45^{m}	OK	2-3					"	"	"	"	"	0^{W}23	
c	"	"	"	"	"	"	"	13:01	13:46	45^{m}	OK	2-3					"	"	"	"	"	1^{W}09	
1434a	"	"	"	"	"	"	"	13:54	14:34	40^{m}	OK	2	He	70			"	"	"	"	"	1^{W}57	orientation as 1432.
b	"	"	"	"	"	"	"	14:36	15:15	39^{m}	OK	1-2					"	"	"	"	"	2^{W}39	
1435a	"	"	"	"	"	"	July 11/12	8:19	9:01	42^{m}	X1.5	2	He 35	+35			9.5	"	"	"	"	3^{E}32	" "
b	"	"	"	"	"	"	"	9:08	9:48	40^{m}	X1.5	2-3	A 35	+35			"	"	"	"	"	2^{E}46	
c	"	"	"	"	"	"	"	9:48	10:27	39^{m}	OK	2-3					"	"	"	"	"	2^{E}02	
1436a	"	"	"	"	"	"	"	10:33	11:08	35^{m}	OK	2-3	He 35	+35			"	"	"	"	"	1^{E}21	
b	"	"	"	"	"	"	"	11:10	11:46	36^{m}	OK	3	A 35	+35			"	"	"	"	"	0^{E}42	

Light Clouds

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

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N1436c	RPIC	WZ Sge	20 05 50	+19 34.5	15.5	sdBe	July 11/12	11:46	12:20	34m	OK	3			300W, #16, 10M		9.5	63B 7°50'	3"	6.70	IIa-O baked	0E09	
1437a	"	"	"	"	"	"	"	12:25	12:36	(16m)		3					"	"	"	"	"	0W08	stopped by clouds!
1437b	"	"	"	"	"	"	July 12/13	8:23	9:04	41m		2	He 35+35				"	"	"	"	"	3E26	
c	"	"	"	"	"	"	"	9:07	9:48	41m		2	A 25+25				"	"	"	"	"	2E42	
1438	"	"	"	"	"	"	"	10:02	11:44	102m	OK	2 1-2	He35+35, A 25+25				"	"	"	"	"	0E46	(clouds after 11:35) 2.5 mm wandering ; one trail S 20"/hr. Stopped by clouds!
1439	"	"	"	"	"	"	July 13/14	8:25	9:52	87m	OK	2-3	He 35+35, A 25+25				4	"	"	"	"	2E29	20"/hr, 2.5 mm wandering.
1440	"	"	"	"	"	"	"	10:00	11:28	88m	OK	3-2	"		"		"	"	"	"	"	0E53	" "
1441	"	"	"	"	"	"	"	11:38	14:13	155m	OK	2-3	"		"		"	"	"	"	"	4W48	" ; drive stuck about 1/2 way!
1442a	"	V Sge ft	20 18 32	+20 59	~15	—	"	14:47	15:02	15m	OK	2-3	He 70, A 50				"	"	4	4	"	2W25	
b	"	V Sge br	~~+20~~ "	"	~13	—	"	15:04	15:13	9m	X 1/2	"					"	"	"	"	"	2W36	This is correct star.
1443	JRG	SN NGC 4303	12 19 46	+4 41	~14	Qe	July 14/15	8 36	9 51	75	✓	2	He 20-20 Ne 10-10		W1 45m		11	98B 40°	3"	6.85	103a F	5W15	1/2 Δ2. Night sky other 1/2.
44	"	Her A; NGC	16 48 59	+5 04	18.5	—	"	10 21	14 08	210	x4	2-3	"		"		"	"	"	"	"	4W56	Δ3 x 4 on slit 5min by 308
45	"	V Sge	20 18 32	+20 59	12.5	Pec	"	1431	15 22	51	~	4	"		"		9	63B 7°20	"	"	"	2W48	1/2 Δ2 = 18m other 1/2 = 51m
46	"	Nova 1848	16 57 06	-12 50	13:+	Qe	July 15/16	8 38	9 07	29	20	5	He 30-30 Ne 15-15 A 10-10		W1		9	"	"	"	IIaO BkA		Δ1 some mech. oil pressure failure
1447a	"	WZ Sge	20 05 50	+17 34	13.5	Qe	"	11 03	11 18	15	✓	5			75m		9	11	"	"	"	0E54	Δ2 interrupted every 15m for 3m (dark slide closed) Trail 20"/hr
b	"	"	"	"	"	"	"	11 21	11 36	15		"						"				0G41	
c	"	"	"	"	"	"	"	11 39	11 54	15		"						"				0E23	N-S, one trail; end exposure
d	"	"	"	"	"	"	"	11 57	12 12	15		"						"				0E05	marred by bright field
e	"	"	"	"	"	"	"	12 15	12 30	15		"										0W13	star
f	"	"	"	"	"	"	"	12 33	12 48	15		"										0W31	
1448	"	G93-53	21 52 03	-1 28	15+	DA	"	13 18	14 37	79	✓	4	"		W1		9	"	"	"	"	0W34	Trouble with oil pressure
1449	JRG	Ton. 209	14 33 28	+23 58	12.3	sdB	July 16/17	8 39	9 04	25	20	4	He 45-45 Ne 15-15 A 20-20		W1	75m	9	64B 13°40	3"	6.85	IIaO Blk	2W23	Δ1 Some Moon
1450	"	"	"	"	"	"	"	9 50	9 24	19	15	4	He + A		W1		11	64B 16°10	"	"	"	2W47	Δ1 " "
1451	"	Ton. 788	15 12 43	+24 19	13.0	"	"	9 38	10 12	34	✓	3	" + A		W1		11	64B 16°10	"	"	"	2W51	Δ1 " " Clds
1452	"	V Sge	20 18 32	+20 59	12.5	Pe	"	10 30	11 "	41	✓	2	" + A		W1		11	64B 16°10	"	"	"	1E16	Δ1 Heavy clouds
N1453a	Sc	NGC 6939 #31	20 30 04	+60 27	12.9	gK	July 17	8 32	8 38	6 1/2m		2-3					8	63B 7°30'	3"	6.80	IIaO Blk (CiDi)		Base 90°, 1/2 Δ1E.
b								8 39	8 53	14m	18m	"					"	"	"	"	"		" , Δ1 "
c								8 53	9 23	30m		"					"	"	"	"	"	3E11	" , 1/2 Δ1E.
1454	"	Cygnus A	19 58 09	+40 38	17.2		"	10 25	15 16	291m		3	He	60'			13	"	1.4	7.00	"	3W14	Base 105°.
1455	"	NGC 6939 #115	20 30 40	+60 31	15:2	dF	July 18	8 20	10 50	150m		2	"	"			8	"	3"	6.80	"	1E41	Base 90°, Δ1, Moon.
1456	"	Cygnus A	19 58 09	+40 38	17.2		"	11 09	15 15	246m		3-4	"	20'			13	"	1.4	7.00	"	3W17	Base 105°.
1457a	"	α Cha B	12 54 12	+38 32	5.9	F0V	July 19	8 07	8 10	170sec		2					8	"	3"	6.80	"	3W19	Base 90°, 1mm in Δ1E; trace west to Sho sep. 5" screen
b		σ Boo	14 33 00	+29 55	5.0	F2V		8 14	8 16	75sec		2					"	"	"	"	"	1W41	" , Δ1. "
c		45 Boo	15 05 35	+25 01	5.6	F5V		8 27	8 23	115sec		2					"	"	"	"	"	1W21	" , 1mm in Δ1E "
1458	"	NGC 6939 #260	20 31 09	+60 30	16.0	dF	"	8 43	10 43	180m	V	2-3	He	60'			"	"	"	"	"	0E44	He in Δ1. Star in Δ1C upper. Moon. Base 90°.
1459	"	3C 445 (a)	22 21 48	-2 18	17		"	12 12	15 16	184m		3-4	"	20'			13	"	1.4	7.00	"	0W59	Base 270°.
1460a	"	λ Dra	11 28 56	+69 32	5.5	Mo III	July 20	8 17	8 21	240s		2-3					8	"	3"	1.80	"	5W00	Base 90°. Δ2C upper. Aperture 140°
b		"	"	"	"	"	"	8 25	8 29	110s		"					"	"	"	"	"	5W06	" . Δ2 upper (1mm). Aperture 110°
c		ζ Dra	17 55 44	+51 29	3.7	K5III	"	8 34	8 40	70s		"					"	"	"	"	"	1E08	" . Δ2 lower (1mm). Aperture 100°
d		"	"	"	"	"	"	8 44	8 43	155s		"					"	"	"	"	"	1E05	" , Δ2C lower. Aperture 140°

5" to screen

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N 1461a	Sc	α CVn B	12 54 12	+38 32	5.9	F8V	July 20	8 59	9 01	135^s	✓	2-3					8	63B 7°30'	3"	6.80	IIaO thd (1D)		Base 90°. 1mm in Δ1 ᶜ down. Aperture 40" } 5.10 screen
b		σ Boo	14 33 00	+29 55	5.0	F2V		9 07	9 08	65^s	✓	"					"	"	"	"	"		" " " Δ1 " " "
c		45 Boo	15 05 35	+25 01	5.6	F5V		9 14	9 16	107^s	✓	"					"	"	"	"	"	2W13	" " " Δ1ᶜ up, " "
1462	"	NGC 6939 #115	20 30 40	+60 31	15.2	dF	"	9 35	11 05	90^m	✓	1-2	He	60^s			"	"	"	"	"	1E16	" , 1mm in Δ2 . Moon
1463a	"	λ Dra	11 28 56	+69 32	5.5	M0III	July 21	8 06	8 09	205^s		2-3					"	"	"	"	"		Base 90°. Aperture 200". Δ2ᶜ up } 5.10 screen
b		"	"	"	"	"	"	8 11	8 13	105^s		"					"	"	"	"	"	4W56	" . Aperture 170". Δ2 upper 1mm "
c		γ Dra	17 55 44	+51 29	3.7	K5III	"	8 20	8 21	68^s		"					"	"	"	"	"		" . Aperture 130". Δ2 down 1mm "
d		"	"	"	"	"	"	8 22	8 25	186^s		"					"	"	"	"	"	1E20	" . Aperture 160". Δ2ᶜ down "
1464	"	NGC 6939 #135	20 30 44	+60 30	13.7		"	8 41	9 06	25^m		2	He	60^s			"	"	"	"	"	3E13	Base 90°, Δ1. Moon
1465	"	" #109	20 30 39	+60 33	14.6		"	9 23	10 23	60^m		2-1	"	40^s			"	"	"	"	"	1E55	Base 90°. 1mm in Δ2 , Moon
1466	"	" #277	20 31 09	+60 30	15.0		"	10 33	12 00	87^m		2	"	40^s			"	"	"	"	"	0E20	Base 90°. Δ1. Moon
1467	"	3C 445 (a)	22 21 48 1958	− 2 18	17	Em	"	12 34	15 14	160^m		2-3	He	30^s			"	988 4°40'	"	"	103aF	1W05	Base 270°.
N 1468	JLG	Ton. 257	16 21 18	+24 51	16	sdOp	Aug. 11	8 17	10 17	120	✓	2	He 45+45		W1		8	63B 7°40	"	"	IIaO Bkd	3W30	Δ1 Base 180
69	"	Luyten LDS 683B	19 32 54	−13 36	16	DA	"	8 41	12 08	81	✓	2	"		"		8	"	"	"	"	2W09	Δ1(3") Decl. Motion Sticky "
1470	"	Gclas 93-64	21 57 51	+1 27	13.5	sdF	"	12 22	12 38	16	12	3	He	90	"		8	"	"	"	" (CCD,)	0W00	Δ1 Streaky. Decl. Mot. Stick, "
1471	"	G 93-64	"	"	"	sdF	"	12 44	13 00	16	12	3	"		"		8	"	"	"	"	0W22	Δ1 Base 90
1472	"	3C 442	22 12 20	+13 36	15	Gal	"	13 13	15 13	120	✓	3	He 45+45		W1	Double exposure	8	"	"	"	"	2W35	Δ3. Not wide and Eight min and still Base 120
1473	"	G 29-38	23 26 16	+4 58	13.7	DA	"	15 36	15 57	21	18	3	He	90	"		8	"	"	"	"	2W05	Δ1
N 1474	JLG	Ton. 257	16 21 18	+24 51	15.5	sdOp	Aug. 12	8 10	10 12	122	✓	2	He 45+45		W2		7	"	"	"	"	3W29	Δ1
1475	"	3C 442	22 12 20	+13 36	15	Gal	"	10 33	13 27	174	✓	2	"		"		8	"	"	"	"	0W33	Δ3; pa 120°, larger, fainter nebula centered
1476	"	+43°4305 BC	22 44 32	+44 05	12.5	dF	"	13 42	13 57	30^s+30^s+3^m	6^m	2	He 90		"		7	"	"	"	"	0W51	Δ1 Double 3", 255°pa', comb. of dM2
1477	"	Ton. S. 103	23 31 18	−29 08	14.4	sdO	"	14 58	15 28	70	✓	1	He 45+45		"		7	"	"	"	"	1W35	Δ1 Ft. cbm pa 110°, 5" } very bright
1478	"	Ton. S. 144	00 07 42	−26 29	12.7	sdO	"	15 37	15 53	16	✓	1	"		"		7	"	"	"	"	1W24	Δ1
~~N 1479~~	~~JLG~~	~~Ton 260~~	16 48 07	+26 44																			
N 1479	JLG	Novas 1919	18 28 58	−29 26	14	6to8p	Aug. 13	8 43	10 02	79	✓	<1	He 45+45		W1		7	63B 7°40	3"	6.80	IIaO Bkd	1W15	Δ1
1480	"	G 67-23	22 46 39	+22 20		DA	"	10 34	11 32	58	✓	1	"		"		7	"	"	0	"	1E32	Δ1 Focus poor
1481	"	G 28-13	22 40 31	−1 43	16	DA5	"	12 11	15 53	222	✓	1	"		"		7	"	"	"	"	2W55	Δ1 Focus poor
N 1482	Z	SN 16 (Messier)	22-37-27	+34°7' 17"			Sept. 3/4	7 25	9 57	150		2+	He+H	14+16			13	98B 3°30'	3"	6.80	103a-O	1E38	Base 279°. Anon
1483	"	SN 36 (Kearns)	1-07-11	+32°6' 5"	19		"	10 28	0 28	120	200	2-3	"	"			12	"	"	"	"	1E29	206°, ac Anon Sb+ SN
1484	"	SN NGC 1058	2-40-12	+37°08'	15		"	0 46	1 01	15	5	2-3	"	40^s			10	"	"	"	"	2W35	(Wild's object) Base 270°
1485	"	"	"	"			"	2 32	2 38	6	✓	2-3	"	40^s			"	"	"	"	"	0E53	"
1486	"	"	"	"	15		"	2 49	2 56	7	✓	4	"	40^s			"	"	"	"	"	0E46	"
N 1487	Sc	γ Dra	17 55 44	+51°29'	3.7	K5III	Sept 7	7 49	8 05	135^s 335^s 335^s		1-3					8	64B 15°14'	3"	6.85	IIaO thd	1W28	Base 90°, Ap. 130", 5" screen, 3/5ths trails.
1488	"	χ Leo	0 12 35	+20 00	6.4	M2III	Sept 7	8 26	8 40	135^s 175^s 335^s		1					"	"	"	"	"	4E11	" " 200", 3" " , 3/5/8 " "
1489	"	NGC 6939 #31	20 30 06	+60 29	12.9	gKM	"	9 19	10 19	60^m		0-2	He	60^s			"	"	"	"	"	1W17	Base 90°, Δ1.
1490	"	NGC 6939 #230	20 31 03	+60 34	14.3	gK	"	10 44	13 00	134^m		1	"	"			"	"	"	"	"	3W52	" " "
1491	"	HR 1327	4 17 00	+65 03	6.1	g5III	"	13 20	13 34	15^s 30^s 40^s		1					"	"	"	"	"	3E33	" " Ap. 200", 4" screen, 2/3/5 Trails
1492	"	3C 98 (a)	3 56 48	+10 20	15		"	14 14	16 14	120^m		1-2	"	"			"	988 4°40'	"	"	103aD	0E26	Base 270°.
1493	"	3C 433 (a)	21 22 03	+24 56	17.17		Sept 8	7 38	10 41	183^m		1-2	"	30+30			"	988 4°20'	"	"	-	0W44	Base 209°

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N1494	Sc	Ann double galaxy	23 36 35	+26 50			Sep 8	11 15	12 45	90m		2	He	20+20			11	98B 5°36'	3"	6.85	IIa-O bkd	0h35	Base 188°
95	"	3C 88 (a)	3 25 54	+ 2 27	14		"	13 58	16 15	137m		2	"	30+30			8	4°20' 48	"	"	103a-D	0h15	Base 180°
96	"	NGC 6939 #31	20 30 06	+60 29	12.9	gKM	Sep 9	7 12	7 45	33m	✓	2-3	"	60+60			8	15°20'	"	"	IIa-O bkd	3E17	" 90°
97	"	" #230	20 31 03	+60 34	14.3	gG	"	8 01	10 01	120m	✓	3	"	60+60			8	"	"	"	"	0h01	" " "
98a	"	ℓ Peg	22 05 12	+25 09	4.2	FSI	"	10 28	10 44	90"/135s		3					"	63B 7°30'	"	"	"	0h08	Base 180°, Ap 130", 4" screen, 2/4 tracks. } Trace at side of ℓ Peg, also in SL 47 & 49
.b	"	3b Peg	3 29 48	+45 56	5.8	FIII	"	10 52	10 59	135"/225s		3					"	"	"	"	"	5E01	" " 20" " " " 3/4 tracks.
99	"	SN #37	23 36 47	+26 49	18		"	11 36	12 54	78m	✓	3	"	20+20			11	98B 5°30'	"	"	"	0h46	Base 174°
1500	"	SN #38	2 24 22	+43 27	17		"	13 36	15 04	108m	✓	3	"	" "			"	"	"	"	"	0h10	Base 165° some clouds
01	"	✓ Wilson	1 23 45	+57 57 15"	17		"	15 52	16 15	23m		3	"	40s			"	"	"	"	103a D	1h27	Base 180°
02	"	NGC 1439 #130	20 30 47	+60 34	14.3	gK	Sep 10	7 32	9 36	120m	✓	3-2	"	60+60			8	64B 15°20'	"	"	IIa-O bkd	0h38	Base 90°
03	"	3C 465 (a)	23 36 40	+26 50			"	10 21	10 51	30m		2	"	30s			"	98B 4°40'	"	"	103a D	1E13	Base 145°. Dbl galaxy in Δ2. } star trace at N. end.
"	"	3C 465 (b,c)	23 36 38	+26 47			"	11 01	12 01	60m		2-3	"	"			"	"	"	"	"	0E02	Base 125°. Triple galaxy in Δ1c }
04a	"	ℓ Peg	22 05 12	+25 09	4.2	FSI	"	12 36	12 40	60"/180s		3					"	63B 7°30'	"	"	IIa-O bkd	2h08	Base 180°, Ap 130" 5" screen, 3/4 tracks } Trace at side of ℓ Peg
.b	"	3b Peg	3 29 48	+45 56	5.8	FIII	"	12 46	12 54	120"/240s		3					"	"	"	"	"	3E03	" " 20" " " " 3/4 tracks }
1505	"	✓ Wilson	1 15 54	+57 37	17		"	13 27	16m	153m		2	"	60s			"	98B 4°20'	"	"	103a D	2h19	Base 180°
N1506a	RPK	AB Dra	19 50 44	+77 39			Sep 15/16	9:30	10:00	30m		2	He	40+40			9	63B 7°50'	3"	6.85	IIa-O baked	2:05W	
b	"	"	"	"			"	10:07	10:30	23m		"	A	30+30			"	"	"	"	"	2:32W	
c	"	"	"	"			"	10:30	11:00	30m		"					"	"	"	"	"	3:02W	
1507a	"	TZ Per	2 11 00	+58 12	~14.5	sdBe +dG	"	12:04	12:32	28m		1-2	He	40+40			"	"	"	"	"	1:46E	
b	"	"	"	"	"	"	"	12:34	13:04	30m		"	A	30+30			"	"	"	"	"	1:19E	
c	"	"	"	"	"	"	"	13:04	13:36	32m		"					"	"	"	"	"	0:42E	
1508 a	"	"	"	"	"	"	"	13:45	14:15	30m		"	He	40+40			"	"	"	"	"	0:03E	
b	"	"	"	"	"	"	"	14:17	14:47	30m		2	A	30+30			"	"	"	"	"	0:29W	
c	"	"	"	"	"	"	"	14:48	15:18	30m		"					"	"	"	"	"	0:02	
1509	"	GK Per (1901)	3 28 32	+43 46	~14	Q	"	15:49	16:28	—		1-2	"				"	"	"	"	"	0:53W	Star trailed cont. on slit. 60" sl. to 1h08; 2 min breaks then 90" sl. for balance.
1510	"	DI Lac (1910)	22 34 13	+52 31	~14	Pec	Sep 16/17	10:46	11:56	—	x2	0-1	"				"	"	"	"	"	1:17W	Cont. trail, 50" sl.; break 1m, 11; 1h 11:12.
1511	"	GK Per (1901)	3 28 32	+43 46	~14	Q	Sep 18/19	12:10	13:17	—		2-3	"				4	"	"	4	"	2:07E	Cont. trail, 60" sl; breaks 1m @ 12:33, 12:56
1512	"	"	"	"	"	"	"	13:24	14:18	—		"	"				"	"	"	"	"	1:16E	" " " breaks 1m @ 13:47
1513	"	"	"	"	"	"	"	14:25	15:16	—		"	"				"	"	"	"	"	0:28E	" " " break 1m @ 14:45
1514	"	"	"	"	"	"	"	15:22	16:15	—		3	"				"	"	"	"	"	0:51W	" " " break 1m @ 15:49
1515	"	DI Lac (1910)	22 34 13	+52 31	~14	Pec	Sep 19/20	12:56	14:32	—		3	"				8	"	"	"	"	4:07W	Cont. tr., 1 mm breaks, 40" sl. to 13:40; 75" sl. to 14:08;
1516	"	SU UMa	08 08 59	+62 44	14.5	sdBe	"	15:15	16:12	—		3-4	"				"	"	"	"	"	3:47E	Cont. tr., 1 mm br., 90" sl. to 15:40; 120" sl. after.
N1517	Mü	M31	0-40-35	+41° 04'			Oct 2	7 45	12 15	270m	✓	3-4	He+A	4+4			8	119B 17°15'	3	6.85	IIa-O bkd	0h35	Base 63°.2 Nucleus W end of Δ3
1518	"	M1	5-32-9	+22° 0'			"	12 56	14 26	90m	180	2-3	He	1+1			8	18°15'	"	"	103a-E	2E06	" 80° sl 1
1519	"	"	"	"			"	14 37	15 45	68m	150	"	Ne	10+10			"	"	"	"	"	0E47	" 50°.5 sl 1 center
1520	"	"	"	"			"	15 55	16 50	55m	90m	4	"	"			"	"	"	"	"	0h18	" 72° sl 1
1521	"	M31	0-40-35	+41° 04'			Oct 3	7 36	12 06	270m	✓	3	He+A	4+4			"	17°15'	"	"	IIa-O bkd	0h30	" 83°.6 nucleus at center
1522	"	M1	5-32-9	+22° 0'			"	1 35	13 14	42m	"	"	He	1+1			14	18°15'	1.5	7.00	103a-F	3E04	" 80° sl 2 at center
1523	"	"	"	"			"	13 24	14 15	51m	"	"	Ne	4+4			"	"	"	"	"	2E03	
1524	"	"	"	"			"	15 17	15 57	40m	"	"	"	"			"	"	"	"	"	0E31	" 122°.5 sl 3 Wend of Δ2

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1961	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1525	Mw	M31	0-40-27	+41°03			Oct 4	7:07	11:42	275m	✓	3	He+A / He	4+4 / 1+1			7.5	119 B / 17°15'	3"	6.85	IIa-O bkd	0h10	Base 63°.2 Nucleus NE end Δ3
26	"	M1	5-31-56	+22° 0'			-	12:10	13:10	60m	✓	2-3	Ne	5+5			14	18°15'	1"5	7.0	103a-F	3E14	" 94° Np 1.0-4 on slit
27	"	"	"	"				13:24	14:44	80m	✓	3					"	"	"	"	"	1E40	" 113° Np 5 center
28	"	"	"	"				15:04	16:44	90m	✓	4	"	"			"	"	"	"	"	0h21	" 42°.5 Np 1 on slit
1529	"	M31	0-40-27	+41°03			Oct 5	7:50	13:20	330m	✓	2-3	He+A / He	4+4 / 1+1			7.5	119 B / 17°15'	3"	6.85	IIa-O bkd	1h51	" 22°.3 Nucleus NE end } Thin clouds
30	"	M1	5-31-56	+22° 0'			-	15:46	16:55	69m	✓	3	Ne	5+5			14	18°15'	15	7.0	103a-F	0h28	" 40" Δ2 center between Np 2&3
1531	"	M31	0-40-27	+41°03			Oct 6	7:07	11:37	270m	✓	1	He+A / He	4+4 / 1+1			7	17°15'	3"	6.85	IIa-O bkd	0h12	" 106°.7 20" from minor axis
32	"	"	"	"			-	12:01	15:05	184m	✓	1	Ne	15+15			"	18°15'	"	"	103a-E	3h41	" 36°.7 major axis Hγ
33	"	M1	5-31-56	+22°01'			"	15:30	17:03	93m	✓	1	"	"			14	"	15	7.0	103a-F	0h46	" 359° p4 1m S of Δ2
1534	"	M31	0-40-38	+41°04'			Oct 8	7:50	12:20	270m	wk	<1	He+A / He	4+4 / 1+1			7	17°15'	3"	6.85	IIa-O bkd	1h04	" 327° Nucleus centered
35	"	"	"	"				12:55	16:12	197m	"	1-	Ne	15+15			"	18°15'	"	"	103a-F	4h56	" 243° Hγ same as N1517
N1536	ASD	M31	0:40:30	+41°03'			Oct 18	15:15	15:32	17		2	Ne	4+4	B, D16, 20 aw, 1.4		Δ2 12	101B / 16°75'	1.5	7.00	IIa-D	4h56	Base 50°. #16
37		M32	0:40:30	+40 40			"	15:56	16:07	11		2	"	"	"		"	"	"	"	"	5E31	" 167° "
38	"	M81	9 52 12	+69 14			Oct 19	15:32	16:16	44		1-2	"	"	E, diffr		"	"	"	"	"	2E28	" 65° "
39	"	R SC nic	9 08 14	+31 08			"	16:37	16:38	1		"	"	"	E		"	"	"	"	"	2E25	Base 90° " Δm=1.0
N1540	Z	Anon galaxy	1-3-24	+31°8'20"			Nov. 3	6:34	8:08	94m	120m	2+	He+H	17+17			12	98 B / 30°30'	3"	6.78	103a-O	1E49	galaxy of supernova Z-SN83. Base 180°
1541	"	" "	1-33-24	−5°48'			"	8:31	10:31	120m	180m	1+	"	4			"	"	"	"	"	0h04	" " " Z-SN84, " 180°
1542	"	Galaxy & SN 103	2-32-30	+37°25'			"	0:22	2:22	120m	✓	2	"	"			"	"	"	"	"	2h56	supernova at mv 18.3 Base 352°
1543	"	Object in NGC 1058	2-40-12	+37° 8'			"	2:41	3:10	29m	✓	2	"	"			"	"	"	"		3h26	wideend, Base 0°.
1544	"	Galaxy Z-SN 83	1-3-24	+31° 08'			Nov. 4	6:26	9:16	150m	✓	1+	"	"			"	"	"	"	"	0E58	Base 180°
1545	"	" Z SN 82	2-34-31	+1°6'20"			"	9:27	11:17	120m	400m	1+	+Ne	10			"	#0 40'	"	"	1030-F	0h03	1030-F (noblue) Grating tilt 4°40'
1546	"	object NGC 1058	2-40-12	+37°8'			"	0:49	1:05	16m	✓	0-1	"	"			"	"	"	"	"	1h34	Base 0°, drifted.
1547	"	#66 in Cl 0024-0138	1-29-13	−1° 10' 24"			Nov. 5	11:08	0:08	60m	✓	1-	He+H	17 5 10	S		"	3036' / 4°40'	"	"	103a-O / 103a-D	- / 2h16	Base 270° / Base 270°
1548	"	object w. Id NGC 1058	2-40-12	+37°8'			"	1:38	1:43	5m	10m	1-	Ne	5 40 20									
N 1549	Sc	M31, #34, 35	0 44 46	+42 00		Em	Nov 7	6:50	15:17	313m		1-2	He	30	W7	3mW, D4, 1½ hrs	10	98 B / 4°40'	3"	6.85	103a-D + GG 11 #2	6h00	Base 195° Last 19½ due to clouds, wind.
1550	"	M31, #24	0 39 46	+40 53		-	Nov 8	7:00	15:13	493m		3-4	"	-	W7		9	"	"	"	"	6h00	Base 53°
							Nov 9	6:09	15:10	541m		3	"	"			"	"	"	"	"	6h00	
							Nov 10	6:08	14:54	526m		3-2					"	"	"	"	"	5h49	Total exp. 26 hrs
1551	"	Dim nebula	5 33 48	- 5 24		-	"	15:55	16:55	60m		2-3	"	-	W8	3mW, Dib, 1 hr	"	"	"	"	"	2h56	Base 270°. 0'.4 S of B, Dri C. Aperture 110".
1552	"	M31, #2	0 45 08	+42 16		-	Nov 11	6:47	14:47	480m		2-0	"	-	W7		"	"	"	"	"	5h40	Base 73°.
1553	"	Dim nebula	5 33 48	- 5 24		-	"	15:24	16:24	60m		1	"	"	W8		"	"	"	"	"	2h29	Base 270°. 0'.4 S of B, Dri C. Aperture 85".
1554	JLG	Abell 78	21 33 24	+31 28	13	Ope	Nov 12	7 16	7 56	40		<1	Ne 3+3 / He 3+3			W1	8	98 B / 4-35	3"	6.85	1034D	2h07	
1555	"	"	"	"	"	"	"	8 03	8 43	40		0	"			—	"	"	"	"	1034f	2h51	Hγ 24 wire 4
1556	"	SN NGC 1058	2 40 13	+37 07	14	Q	"	9 13	11 30	137		1	"			W1	"	"	"	"	1034D	0h14	
1557	"	"	"	"	"	"	"	11 43	12 36	53		0	"	+A 15+15		W2	7	63 B / 2-30	"	"	Hca0 Bkd	1h40	wind, seeing impossible
1558	"	3C48	1 34 33	+32 50	16.0	Q	Nov 14	11 17	15 07	230	360	3	He 3	Ne 3	W3		9	98 B / 4-35	4	4	1034D	5h22	no moon
1559	"	HZ 9	4 29 23	+17 38	14.2	DA	"	15 31	16 31	60	90	2	He 3+3 / Ne 3+3		W3		7	"	"	4	1034D	3h32	
1560	"	G97-56	5 35 39	+11 49	14.1	G	"	16 55	17 10	15	20	2	He 3		—		7	98 B / 3-35	"	4	IIa0 Bkd	3h25	some dawn

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1561a	RPK	ζ Cam	8 20 52	+73 15	13.5	sdBe	Dec 11/62	11:49	12:19	28m	OK	1	He 30+30				9	638	3"	6.75	IIa-0 (CIFI)	2E27	wide one first.
													A 40+40					7°50'					
b	"	"	"	"	"	"	"	12:21	12:46	27m	OK	1					"	"	"	"	"		
c	"	"	"	"	"	"	"	12:46	13:22	36m	OK	1					"	"	"	"	"	1E27	
1562a	"	"	"	"	"	"	"	13:26	13:56	30m	OK	1	He 30+30				"	"	"	"	"		orientation as 1561
b	"	"	"	"	"	"	"	13:59	14:30	31m	OK	1	A 40+40				"	"	"	"	"	0E13	
c	"	"	"	"	"	"	"	14:31	15:08	34m	OK	1-2					"	"	"	"	"	0W22	
1563a	"	"	"	"	"	"	"	15:12	15:45	33m	OK	2	He 30+30				"	"	"	"	"	1W02	as 1561
b	"	"	"	"	"	"	"	15:47	16:17	30m	OK	2	A 40+40				"	"	"	"	"		
c	"	"	"	"	"	"	"	16:17	16:44	27m	OK	2					"	"	"	"	"	2W01	
1564	"	DN Gem (1962)	6 52 23	+32 12	~16		Dec 16/62	15:27	16:06	39m		3	He 30+30				7½	"	"	"	Baker IIa-0 (CIDI)		Rate 25"/hr slow
—	—	—	—	—	—	—	—	16:07	16:47	40m		1-2	A 40+40				"	"	"	"	"	3W51	Rate 35"/hr slow, stopped by clouds
N1565	Sc	3C 171 (a)	6 52 13	+54 12	20	Em	Jan 3 1962	7:25	17:25	10hrs		2	He 20+20				9	918	3"	6.80	103a D (CICI)	5W41	Base 21'.1
66	-	NGC 604	1 32 26	+30 36		Em	" 4	6:34	7:27	48m		2-1	Ne 120+120				"	4°40'	"	"	" + GG 11		" 90°. Stopped by wind.
67	-	NGC 604	1 32 26	+30 36		"	" 5	6:32	9:02	150m		2	He 30+30				"	"	"	"	" + GG 11	2W42	" 90°.
68	-	3C 219 (a)	9 18 43	+45 49	18½	Em	" 6	9:47	15:00	313m		2	He 20+20				"	"	"	"	"	1W57	" 141°.
69	-	SN NGC 3938	11 51 03	+44 22	13	"	" 6	16:08	17:30	92m		2	Ne 120+120				12	"	"	"	"	0W36	" 180°. 2, 4, 8, 16 Reads, Δ2.
70	"	IC 732	1 31 11	+30 46		Em	" 6	7:02	9:32	150m		1	He 20+20				9	"	"	"	" + GG 11		" 119°, stopped by clouds.
71	-	IC 732	1 31 11	+30 46		"	" 7	6:18	11:18	5hr		3-2	He 30+30				"	"	"	"	" + GG 11	5W10	" 122°.
72	-	3C 198 (a)	8 20 38	+06 06	17½	Em	" 7	11:54	17:09	5¼hr		3	He 20+20 Ne 120+120				"	"	"	"	"	4W13	" 354°.
N1573	JLG	Giclas 1-45	1 01 14 1950	+4 48	14	DA5	Jan. 27	7 06	8 21	75	✓	0	He 30-30		W1	70mm	9	638	3"	6.80	IIa-0 B+G	4W00	Bright sky
																		7°50					
74	"	Ton. S.-415	5 15 54	-30 52	13	Fkp	"	8 44	9 44	60	-	0	"		W1		"	"	"	"	"	1W09	Bright sky; High winds. Identity?
75	"	Ton. 322	8 25 24	+30 38	14	A0	"	11 29	12 29	60	✓	0	"		—		7	"	"	"	"	0W54	Moon
N1576	"	−12°290	1 31 42	-11 38	14.4	Ap	Jan. 28	6 46	7 06	20	✓	1	He 30-30		W1	70mm	7	"	"	"	"	2W19	Δ2
77	"	G 72-6	1 22 26	+27 26	13.6	sdF	"	7 32	8 05	38	✓	0	"		"		7	"	"	"	"	3W36	High wind
N1578	JLG	SN-NGC 1058	2 40 13	+37 07	~14.5	Em	Jan. 29	6 57	8 30	93	✓	1	He 20-20 A 30-30 Ne 30-30		W1	70	10	638	"	"	IIa-0 Blad	2W38	Δ1
																		7°50					
79	"	HZ 3	3 50 47	+10 36	13.0	sdO	"	8 56	9 50	54	✓	0	He 30-30		W1	c'ld Emulsion	7	"	"	"	"	2W48	Δ2
1580	"	68244 = 6846	4 40 39	-3 15	14.1	sdG	"	10 14	11 14	60	✓	0-1	"		W1		7	"	"	"	"	3W22	Δ1
81	"	G 87-29	7 06 52	+37 45	16.0	DC	"	11 25	14 23	178	✓	1	He 20-20		W1		10	"	"	"	"	4W05	Δ1 * Bad Rumble
82	"	LB 1938	11 00 41	+59 07	13.2	Bp	"	14 39	15 05	26	✓	1	He 30-30		W2	70mm	7	"	"	"	IIa-0 Blad	0W51	Δ1 ¼ Moon, Sky Dark
83	"	LB 253	11 04 46	+60 15	13.5	DA	"	15 14	15 45	31	✓	1	"		W2	New Emulsion	7	"	"	"	"	1W30	Δ1 " " "
84	"	Ton. 573	11 07 18	+26 38	15.1	DB	"	16 16	17 17	61	90	0	He 20-20		W2		9	"	"	"	"	3W00	Δ1 ½ w. cloud " Sky Bright
N1585	JLG	L 1373-25	1 07 30	+26 45	14.8	DA	Jan. 30	6 59	8 02	63	✓	1	He 20-20 A 20-20		W1	New Emulsion	9	"	"	"	"	3W47	Δ1
86	"	G 3-16	1 40 55	+4 36	11.2	sdF	"	8 18	8 27	9	5	0	He 30-30 A 30-30		W1	70mm	7	"	"	"	"	3W39	Δ1
87	"	G 37-44	3 32 09	+32 02	15.1	DA	"	8 46	10 15	89	✓	1	He 30-30		W1		7	"	"	"	"	3W35	Δ1
88	"	G 87-29	7 06 52	+37 45	16.0	DC	"	10 33	13 24	171	✓	2	He 20-20		W2	70mm	9	"	"	"	"	3W11	Δ1
89	"	Abell 31	8 51 30	+9 06	~15.5	?	"	13 46	14 48	62	x2	2	"		W2		9	"	"	"	"	2W50	Δ1 Some moon
1590	"	HD 84937	9 46 12	+13 59	8.4	sdF	"	15 07	15 19	11,21 3m	3	2	He 60 A 60		W2		7	"	"	"	"	2W21	Δ1 + Δ2c, 110" obstruction
91	"	G 49-33	9 55 00	+24 47	14.6	DA	"	15 30	16 16	46		2	A 30-30 He 30-30		W2		7	"	"	"	"	3W14	Δ1 Some moon
92	"	Feige 38	11 14 12	+7 16	12.9	?	"	16 28	16 52	24		1	He, A		W2		7	"	"	"	"	2W27	Δ2 He crosses spectrum. Some moon
93	"	Feige 40	11 18 54	+11 36	11.1	B	"	16 56	17 00	4		1	He, A		W2		7	"	"	"	"	2W35	Δ2 Some Moon

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1962	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1594	Z	SN NGC 1058	1950: 2-40-29	+37° 08'	16	Nova	I. 31	7:02	8:02	60m	✓	2+	He 17+17 / Ne 7+7				11	948 / 40°40'	3"	6.80	103a-F	2W18	supernova Wild.
95	"	" " "	"	"	"	"	"	9:00	9:49	49m	✓	2-3	He 25+25				10	948 / 35°30'	"	"	103a-O	4W05	" " Widened,
96	"	IC 2363	8-22-54	+19°36'42"	-	-	"	10:08	0:08	120m	✓	2-3	He 25+25				12	"	"	"	"	0W43	seat of supernova Humason E26,
97	"	Supernova (Z)	13-3-52	+28° 6'	18		"	2:09	5:14	3h 5m	2h	3	"				13	"	"	"	"	1W07	Member Coma Cluster 2;
98	"	#54 CGCG 0134-0138	1-26-25	-0°49'20"			J. 1/2	6:46	7:56	70m	✓	2-3	He 22+22 / He 25+25				12	"	"	"	"	3W30	Member of Cluster of galaxies.
99	"	SN NGC 1058	2-40-29	+37° 08'	16	Nova	"	8:14	9:19	65m	85m	3	Ne 12+12				11	948 / 40°40'	"	"	103a-F	3W39	supernova Wild
N1600	"	#1 in Cluster	11-7-57	+29°21'12"			"	10:07	11:37	90m	✓	3	He 22+22				11	948 / 35°30'	"	"	103a-O	2E30	
1601	"	SN in NGC 4303	12-19-27	+4°44'40"	19	Nova	"	1:12	4:22	3h 10m	✓	3-5	He 26+26				9	"	"	"	"	1W05	
1602	Kui	M81 (E4)	9-52-19	+69° 08'			2 Feb	13:46	15:46	120m	wk	23	Ne	10+10			7	1198 / 18°10'	J"	6.80	103a-E	3W00	p.a. 40.5°
1603	"	" E18	9-52-03	+69° 23'			"	16:06	17:23	77m	✓	3-4	"	"			"	"	"	"	"	4W37	
1604	"	NGC 2403 E3	7-32-43	+65° 43'			Feb 3	7:45	9:25	100m	x2	2-3	"	"			"	"	"	"	"	0E59	
1605	"	M81 (E4)	9-52-19	+69° 08'			"	15:10	17:35	145m	x2	4	"	"			"	"	"	"	"	4W41	
1606	"	NGC 2403 E11	7-33-45	+65° 41'			Feb 4	7:09	9:39	150m	✓	2	"	"			"	"	"	"	"	0E40	Thick clouds!
1607	Z	SN NGC 1058	2-40-29	+37° 08'	17	Nova	Febr. 27	7:02	8:32	90m	✓	1+	He 30+30				11	948 / 35°30'	3"	6.70	103a-O	4W35	Base 270° supernova Type V.
1608	"	SN NGC 3938	11-50-12	+44°24'	17	"	"	8:59	10:31	92m	✓	1+	"	"			11	"	"	"	"	2E36	" " " Type II
1609	"	SN Anon galaxy	10-30-48	-27° 39'	19	"	"	11:16	1:00	104m	200	1	"	"			13	"	"	"	"	1W13	" 180° " in field Hydra I Cl.
1610	"	SN " "	15-20-42	+29° 57'	18.5	"	"	2:38	3:38	60m	90m	3	"	"			"	"	"	"	"	0E57	" 282° " " " Corvi Bor. Cl.
1611	"	SN NGC 1058	2-40-29	+37° 08'	17	"	Febr. 28	7:00	8:30	90m	✓	3-4	He 50+50				10	"	"	"	IIa-O baked	4W37	Base 270°, widened.
1612	"	galaxy 34 in Cl.	11-13-48	+29° 32'	14	-	"	8:58	10:28	90m	✓	3-4	He 40+40				12	"	"	"	" "	1E58	" 270°
1613	Z	" 30-31 "	"	"	"	-	"	11:27	0:27	60m	✓	"	" 35+35				"	"	"	"	" "	0W02	" 162.5°
1614	"	" 29 "	"	"	"		"	0:42	1:42	60m	✓	✓	" "				"	"	"	"	" "	1W17	" "
1615	"	Anon gal., SN.	15-20-42	+29° 57'	18.5	Nova	"	2:00	3:00	60m	✓	✓	" "				"	"	"	"	" "	1E33	" 282°
N1616a	RPK	EX Hya	12 50 21	-29 03	13.5	Var UG	Mar 11/12	12:41	13:09	28m	OK	1-2	He 30+30 / A 40+40				7	6.3 B 50'	3"	6.90	IIa-O baked		(wide first)
b	"	"	"	"	"	"	"	13:10	13:38	28m	OK	1-2					"	"	"	"	"		trailed S.
c	"	"	"	"	"	"	"	13:39	14:05	26m	OK	1-2					"	"	"	"	"	0W46	
N1617a	"	"	"	"	"	"	"	14:20	14:42	21m	OK	1-2	He 30+30 / A 40+40				8	"	"	"	"		(orientation as 1616) 40"/hr S
b	"	"	"	"	"	"	"	14:45	15:12	23m	OK	1					"	"	"	"	"		One trail S, cont along slit 25"/hr S
c	"	"	"	"	"	"	"	15:13	15:43	30m	OK	1					"	"	"	"	"	2W24	25"/hr S
N1618a	"	V841 Oph (1848)	16 57 19	-12 50	13.8	Nova	"	16:03	16:27	24m	OK	3	He 30+30				"	"	"	"	"		center first
b	"	"	"	"	"	"	"	16:28	16:56	26m	OK	2-3	A 40+40				"	"	"	"	"	0E30	
N1619a	"	EX Hya	12 50 21	-29 03	13.5	UG	Mar 12/13	12:45	13:17	32m		1	He 30+30				"	"	"	"	"		Increased rate at 12:57 } orientation
b	"	"	"	"	"	"	"	13:17	13:42	25m		1	A 40+40				"	"	"	"	"		Trailed cont. 25"/hr S } as 1616
c	"	"	"	"	"	"	"	13:43	14:08	25m		1					"	"	"	"	"	0W53	
N1620a	"	"	"	"	"	"	"	14:16	14:51	35m		2-1	Ne 30+30				"	"	"	"	"		Trailed cont, 25"/hr S
b	"	"	"	"	"	"	"	14:52	15:16	24m		2-1	A 40+40				"	"	"	"	"	2W29	
c	"	"	"	"	"	"	"	15:17	15:44	27m		1											

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, SEATTLE, DENVER

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	1962 DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 1621	Z	SN NGC 1058	2-40-30	+37° 8' 10"	17.5	Nova	March 26	7:13	8:13	60min	V	1-2	He 3	+35			11	98B 30°30'	3"	6.80	IIa-0 baked	6h 03	supernova spectr. widened. Base 90°
1622	"	Supernova III	11-12-24	+26° 10'	20.0	"	"	9:17	11:09	112	300	3-4	"	"			12	"	"	"	" "	5h 26	Also double galaxy. SN on bridge. Base 180°
1623	Z	No. 1 group galaxies	15-59-56	+16° 04'	16.0 pg		"	1:01	1:31	30min	60min	3	"	"			12	"	"	"	" "	1E 59	Moon, clouds Base 180°
N 1624	JLG	Giclas 87-28	7-06-52	+37 45	16.3	sdM	Apr. 2/3	7:52	10:07	131	✓	5	ΔLC A	15+15	W1	70 min	8	6.3B 7°50	3"	6.80	IIa-0 B&H	3w 58	½ Δ1 clds
25	"	Abell 31	8 51 30	+9 06	15.0	sdO	"	16:27	11:42	75	✓	4	He 45+45		W1		9	"	"	"	C1F1	3w 48	Δ1
26	"	Wolf 457	12 57 42	+3 46	16.5	DC	"	12:12	15:45	213	X2	4	"		W1		9	"	"	"	"	w 48	Δ1 clds. Sky Very Bright Stopped several times
N 1627	JLG	Wolf 457	12 57 42	+03 46	16.5	DC	Apr. 3/4	10:39	13:48	199	✓	3	A 15+15 He 30+30		W1	70 min	9	"	"	6.80	IIa-0 B&H	1w 56	Sky Fairly Bright Δ1
28	"	HZ 32	12 48 42	+37 27	15.6	B+F?	"	14:09	15:31	82	✓	4	A 15+15 He 45+45		W1		7	"	"	"	"	3w 43	" Δ1
29	"	Ton. 780	14 37 54	+23 20	14.7	DA	"	15:46	16:26	40	✓	4	"		W1		7	"	"	"	"	2w 53	" Δ1
N 1630	JLG	LDS 235B	8 45 18	-18 48	15.3	DB	Apr. 4/5	7:43	9:13	90	✓	3	He 30+30 A 15+15		W1	70 min	9	"	3"	6.80	IIa-0 B&H	1w 52	Δ1
31	"	LDS 235A	8 45 18	-18 48	12.6	K	"	9:20	9:35	15	✓	3	He 45+45 A 15+15		W1		7	"	"	"	"	1w 54	Δ1
32	"	Abell 33	9 36 36	-2 34	15.2	O?	"	9:50	11:26	96	150	3	"		W1		7	"	"	"	"	2w 54	Δ1
33	"	HZ 17	12 02 42	+40 25	15.3	sdB	"	11:20	13:05	75	✓	3-4	"		W1		7	"	"	"	"	2w 08	Δ1
34	"	HZ 18	12 06 30	+37 29	15.3	sdB	"	13:23	14:46	83	✓	3-4	"		W2	70 min	7	"	"	"	"	3w 45	Δ1 Britern, wide double, comp. 16m 6", PA 340
35	"	Ton. 139	12 53 24	+28 23	12.7	B+G	"	15:02	15:20	18	✓	3-4	"		W2		7	"	"	"	"	3w 32	Δ2 = Stetebag #73
36	"	Ton. 165	13 32 54	+28 09	15.1	sdB	"	15:34	16:25	51	✓	3-4	"		W2		7	"	"	"	"	3w 38	Δ1 Dawn
N 37	JLG	Abell 33	9 36 36	-2 34	15.2	Op	Apr. 5/6	7:36	10:06	150	✓	2-3	A 15+15 He 45+45		W1		9	"	"	6.90	"	1w 38	Δ1
38	"	+10° 2179	10 36 20	+10° 19	9.9	Bp	"	10:21	10:24	96 sec 108	✓	3			W1		7	"	"	"	"	0w 36	Δ1c, 2 pairs 60" apart, Δ1c 1 pair 200"
39	"	Feige 38	11 14 12	+7 16	12.4	Ap	"	10:35	10:46	11	✓	3	"		W1		7	"	"	"	"	0w 41	Δ1
1640	"	Feige 48	11 44 35	+61 32	12.3	Ab	"	11:00	11:16	16	✓	2	"		W1		7	"	"	"	"	0w 40	Δ2
41	"	Giclas 61-16B	12 44 45	+14 58	16.1	DA	"	11:37	14:34	177	✓	2-3	"		W2		9	"	"	"	"	2w 59	Δ1 } wide pair
42	"	Giclas 61-16A	12 44 44	+14 58	15.0	dK	"	14:41	15:41	60	120	2	"		W2		7	"	"	"	"	4w 07	Δ1 } 11es ft 16m 7" companion, 3"
43	"	Feige 74	13 05 00	+19 53	11.6	sdF?	"	15:52	16:02	10	25	2	"		W2		7	"	"	"	"	4w 07	Δ2
N 1644	MW	Comet Seki-Lines	4-59-0	+28° 15'			Apr. 27/28	7.50	8.35	45m	100	1-2	Ne 2+2				9	10B 14°30'	3"	6.90	I-N hypers.	6h 12	Δ3 Filter 2404
1645	"	M81 nucleus	9-52-25	+69° 13'		Sb	"	8.55	12.44	229m	✓	2	Ne 2+2 He 1+1				8	10B 15°01	"	"	IIa-D	5h 29	
1646	"	NGC 5322	13-48-10	+60° 22		E4	"	13.04	15.58	174m	-	-	"				-	"	"	"	"	4h 48	
N 1647	Sc	3C 196(a)	8 10 53	+48 20	16.8		May 4	8 06	10 36	150m		2-1	He 15+15 Ne 15+15				9	9B 4°40'	3"	6.80	IIaD thk (L1D1)	5w 31	Base 0°
48	"	3C 286(b)	13 29 25	+30 42	~17		"	11 13	15 30	257m		3-2	"				"	"	"	"	"	5w 07	" 0°
49	"	3C 295	14 10 00	+52 23	21		May 5	8 21	15 21	7hrs		2	He 15+15 Ne 15+15				"	"	"	"	"	4w 20	" 142°
50	"	3C 273	12 29 16	+ 2 16	~12½		May 6	8 05	12 37	272m		2	He 15+15 Ne 15+15				"	"	"	"	"	3w 21	" 292°
51	"	3C 348(b)	16 49 16	+ 5 03	~18		"	13 10	15 30	140m		2	"				"	"	"	"	"	1w 54	" 180°
52	"	3C 234(a)	9 59 40	+28 58	17½		May 7	8 03	11 45	222m		3	"				"	"	"	"	"	5w 02	" 15°, thr. through 2 fr. galaxies of cluster
53	"	3C 317(a,b)	15 14 50	+ 7 11	16		"	12 26	15 30	184m		3-2	"				"	"	"	"	"	3w 33	" 304°
54	"	3C 254(a)	11 12 35	+40 50	18		May 8	8 02	12 02	4h		4-2	"				"	"	"	"	"	2w 32	" 0°
55	"	NGC 6166	16 27 20	+ 39 38			"	12 46	15 26	160m		2	He 15+15				8	14B 15°30'	"	"	IIaD thk (L1D1)	2w 21	" 0°
1656	"	Coma A	12 52 22	+27 50	17½		May 9	10 04	14 42	278m		2	He 15+15 Ne 15+15				9	9B 4°30'	"	"	IIaD thk (L1D1)	5w 16	" 270°
1657	MW	M82	9-52-0	+69° 49'			June 5	8.16	11:17	181m	✓	1-2	Ne 4+4				9	14B 18°15'	3"	6.80	103a-F	6w 34	Base 66°
58	"	"	"	"			" 7	8.21	11:05	164m	210	2	"				"	"	"	"	"	6w 30	" 187°

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, HONOLULU

NO.	OBS.	OBJECT	R. A. 1950	DECL.	MAG.	SP.	DATE 1962	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1659	JLG	ADS 8471B	12 12 06	-05 29	13.5	sdG	June 24/25	9 17	9 47	30	✓	4	Hc 30 A 20	30 +20	W 3	90″	9	63B 7°50	3″	6.80	IIa-O B+d	4ʰ00	Δ1 } Some scattered light
1660	"	"	"	"	13.5	"	"	9 53	10 09	16	✓	3	"		W 3		"	"	"	"	"	4ʰ22	½Δ1 }
61	"	-37°10500	15 44 53	-37 45	13	DA	"	10 21	10 46	25	✓	2	"		W 3		"	"	"	"	"	1ʰ26	some scattered light + Fabry-Perot comp. on slit
62	"	Giclas 24-90	20 11 32	+06 32	15.7	DC	"	11 23	12 28	65	✓	4	"		W 3		"	"	"	"	"	1ʰ19	½Δ1
N1663	SL	3C 286 (B)	13 29 25	+30 42	17		June 25	8 36	12 21	225″		3-2	He 15+15, Ne 15+15				9	4°40′	3″	1.90	IIa-D thd	5ʰ20	½ exp per 0.5 Δ1, remainder per Δ1. Base 90°
64	"	3C 386 (a)	18 36 46	+17 10	16			12 52	15 05	133″		3	"		"		"	"	"	"	"	2ʰ19	Base 0°
65	"	3C 286 (B)	13 29 25	+30 42	17		June 26	8 29	11 45	196″		3	"		"		"	"	"	"	"	4ʰ49	Base 270°. Widened per about 0.15 Δ1.
66	"	3C 353 (a)	17 18 35	-0 57	17		"	12 20	14 50	150″		3-2	"		"		"	"	"	"	"	4ʰ06	" 270°.
67	"	3C 286 (B)	13 29 25	+30 42	17		June 27	8 23	12 00	217″		2-3	"		"		"	13°8 7°50	"	"	IIa-D thd	5ʰ07	" 270°. Widened more about 0.12 Δ1.
68	"	3C 388 (a)	18 42 57	+45 31	16		"	12 35	15 11	186″		2-1	"		"		"	9°8 4°40′	"	"	IIa-D thd	3ʰ07	" 0°.
69	"	3C 286 (B)	13 29 25	+30 42	17		June 28	8 21	11 45	204″		2	"		"		"	13°8 7°50	"	"	IIa-O thd	4ʰ57	" 270°.
70	"	3C 353 (a)	17 18 35	-0 57	17		"	12 14	14 44	150″		2	"		"		"	9°8 4°40′	"	"	IIa-D thd	4ʰ07	" 270°.
71	"	3C 298 (a)	14 17 16	+6 39	17		June 29	8 30	10 30	120″		2-3	"		"		"	"	"	"	"	2ʰ57	" 0°.
72	"	3C 310 (1,2)	15 03 20	+26 10	16		"	11 03	13 13	130″		2	"		"		"	9°8 4°40′	"	"	IIa-D thd	4ʰ54	" 294°.
73	"	3C 315	15 12 03	+26 16	18		July 1	8 26	12 26	240″		3-2	"		"		"	"	"	"	"	4ʰ06	" 0°.
74	"	M23-112	23 23 23	-12 20	16½		"	12 53	15 10	137″		2-3	"		"		"	"	"	"	"	1ᴱ20	" 180°.
75	"	3C 310 (1,2)	15 03 20	+26 10	16		July 2	8 20	10 20	120″		3-4	"		"		"	9°8 4°40′	"	"	IIa-D thd	2ʰ23	" 294°.
76	"	Lynds A	14 58 11	+40 38	17½		"	10 56	13 10	254″		3	"		"		"	9°8 5°40′	"	"	IIa-D thd	2ʰ09	" 105°.
77	"	Anon. Star	13 22 18	-20 56	~12		July 3	8 19	8 34	15″		2	"		"		"	9°8 5°40′	"	"	IIa-D thd	2ʰ13	" 270°. Star 13ʰ22ᵐ0 NSC 5134. Misidentification of SN Hers-Rumaker
78	"	3C 327 (A)	16 0 34	+20 4	17		"	8 51	12 11	200″		2-4	"		"		"	9°8 4°40′	"	"	IIa-D thd	3ʰ09	" 0°.
79	"	SN Hers-Rumaker	13 22 29	-20 56	13		July 4	8 25	8 45	20″		2	"		"		"	9°8 4°40′	"	"	IIa-D thd	2ʰ27	" 270°; SN 2ʰ22ᵐ9 galaxy; ± Δ1.
80	"	Her A (B)	16 49 16	+5 03	19		"	9 22	14 53	330″		3	"		"		"	9°8 4°40′	"	"	IIa-D thd	5ʰ08	" 299°.
N1681	JLG	47 Boo B	15 03 47	+48 20	13	?	July 30	8 25-35	8 32-42	5,1	2	2	He 90, Ne 30 A 30		W 1/20″		7	63B 7°30	3″	6.93	IIa-O B+0	2ʰ18	1 min exp, dewed. Much scattered light present
82	"	AP Ser B	15 12 03	+10 08	15	sdG	"	8 48	9 48	60	✓	2	"		W 1		"	"	"	"	" 5″ D19	3ʰ33	
83	"	LDS 683B	19 32 54	-13 36	15	sdM0	"	10 49	12 04	60	✓	3	"		W 1		"	"	"	"	"	0ʰ01	Exp interrupted
84	"	G 24-10	20 11 29	+6 32	14.7	dM4	"	12 48	13 47	59	✓	3	"		W 1		"	"	"	"	"	2ʰ23	
85	"	LDS 785B	22 24 36	-34 27	14.7	sdM1	"	14 15	15 58	58	✓	3	"		W 1		"	"	"	"	"	1ʰ30	½ Δ1
N1686	JLG	47 Boo B	15 04 09 1960	+48 18	13	?	July 31	8 53	8 53	1ᵐ	✓	5	Ne 60 Ne 30 A 30		W 2	70″	7	63B 7°30	3″	6.93	IIa-O B+0	2ʰ37	Widened 5 steps, slow motion, + a little wider at end 1
87	"	R Cor Bor	15 47 03	+28 16	12.5	G pe	"	9 19	9 39	20″	10″	5	"		4		"	"	"	"	4″ D19	2ʰ31	½ D1C 10″; ½ B1C 20″; 5″; + Red 2
88	"	Case 2	16 07 04	+42 12	13.5	DA	"	9 44	10 09	25″	✓	3			"		"	"	"	"	"	2ʰ33	
89	"	LDS 678B	19 18 12 1950	-7 45	13.7	dM	"	10 26	10 51	25		3			"		"	"	"	"	"	2ʰ47	Looks funny 3
1690	"	ADS 10585 AB	17 22 24	+29 26	11	dM	"	11 06	11 07	1/3		3			"		"	"	"	"	"	0ʰ23	4
91	"	μ Her Bc	17 44 30	+27 45	11.5	dM	"	11 28	11 33	5/6		3			"		"	"	"	"	"	2ʰ09	Both stars in slit 5
92	"	20c 1191	20 09 00	+54 19	12.8	dMe	"	11 46	12 01	15		2			"		"	"	"	"	"	2ʰ31	Both stars in slit 6
93	"	LDS 785 A	22 24 34	-34 27	14.7	DB	"	12 20	13 35	75		2			"		"	"	"	"	"	3ʰ48	7
94	"	G 67-23	22 46 39	+22 20	14.5	DA	"	13 50	15 15	≈30″		2			"		"	"	"	"	"	0ʰ01	8
95	"	Comet Humason	23 11 39 1962	-7 17	≈9	—	"	15 24	15 44	20″					"		"	"	"	"	"	1ʰ19	Dec. Drive sticky. Exp. interrupted 9
1696	JLG	AP Ser B	15 12 03	+10 08	15	sdG	Aug. 1	8 59	9 49	50	✓	3	He 60 Ne 30 A 30		W 1	70″	8	63B 7°30	"	"	IIa-O B+0	1ʰ24	Δ3, 60″ per; Drifted unsuccessfully in Declination 10
97	"	R Cor Bor	15 47 03	+28 16	12.5	G pe	"	10 04	10 34	30	✓	3	He 60 A 60, Ne 60		W 1		7	64B 12°45	"	"	4″ D19	3ʰ31	Δ4
98	"	"	"	"	"	"	"	10 42	10 57	15	✓	3	He 90 A 60 Ne 60		W 1		7	64B 15°70	"	"	"	3ʰ41	Δ1
																						4ʰ04	Δ1

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1962	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1699	JJG	W 672 B	17 16 12	+2 00	15.6	M	Aug 1	11h28	11h38	60	✓	2	Ne 30 A 30	He 60	W 1		7	63B 7°30	3"	6.93	IIa-O Bard	4w16	RA clutch slipping. Refocused Δ 4
1700	"	AD 10585 AB	17 27 24	+29 26	11	M	"	12h54	13h09	1,4	6	3	"	"	"		"	"	"	"	"	4w38	130" aperture Δ 1 c 5
01	"	+28°4211 B	21 48 52	+28 37	15?	??	"	13h23	13h38	3/3	?	4	"	"	"		"	"	"	"	"	0w43	Δ 1 cloud-dimmed to 2.7° 6
02	"	Comet Humason	23 09 00	-7 48	—	—	"	13h50	14h10	20	✓	2	"	"	"		"	63B 60.5	"	"	"	0E03	to 90° - Wide open Δ 3c; slow at E end of slit 7
N1703a	RPK	WZ Sge	20 05 53	+17 34	15.5	sdBe	Aug 2/3	8:03	8:23	20m	OK	1-3	He 40+40				8½	63B 7°50'	3"	"	" CID2		20"/hr S.
b	"	"	"	"	"	"	"	8:25	8:45	20m	"	"	A 30+30				"	"	"	"	"		trailed continuously
c	"	"	"	"	"	"	"	8:47	9:07	20m	"	"					"	"	"	"	"		
d	"	"	"	"	"	"	"	9:09	9:29	20m	"	"					"	"	"	"	"		
e	"	"	"	"	"	"	"	9:31	9:43	12m	"	"					"	"	"	"	"	1E25	
N1704a	"	WZ Sge	"	"	"	"	"	9:51	10:11	20m	"	3	He 40+40		300" #10, 15m		"	"	"	"	"		"
b	"	"	"	"	"	"	"	10:13	10:33	20m	"	"	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	10:35	10:55	20m	"	"					"	"	"	"	"		
d	"	"	"	"	"	"	"	10:57	11:28	31m	"	"					"	"	"	"	"	0w20	
N1705a	"	EM Cyg	19 37 10	+30 25	14.2	dG+sdBe	"	13:04	13:19	15m	"	"	He 40+40				"	"	"	"	"		d.l.s. 30"/hr slow, increasing to 40" at end Clutch slipped: 13:25-13:31
b	"	"	"	"	"	"	"	13:21	13:36	15m	"	"	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	13:38	13:53	15m	"	"					"	"	"	"	"		
d	"	"	"	"	"	"	"	13:55	14:10	15m	"	"					"	"	"	"	"	3w34	
N1706a	"	"	"	"	"	"	"	14:19	14:34	15m	"	2-3	He 40+40				"	"	"	"	"		" start 60" slow; end 85" slow
b	"	"	"	"	"	"	"	14:36	14:51	15m	"	"	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	14:53	15:08	15m	"	"					"	"	"	"	"	4m30	
N1707a	"	"	"	"	"	"	"	15:14	15:44	30m	"	2	"				"	"	"	"	"	5w06	" , start 85" slow, end 95" slow.
N1708a	"	WZ Sge	20 05 53	+17 34	15.5	sdBe	Aug 3/4	7:57	8:50	53m	OK	2	He 40+40				"	"	"	"	"		wide knot; cont. trailed. 20"/hr South
b	"	"	"	"	"	"	"	8:53.5	9:19	25½m	XL	1-2	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	9:22	9:56	34m	OK	1					"	"	"	"	"	1E08	
N1709a	"	"	"	"	"	"	"	10:05	10:47	37m	"	2-3	He 40+40				"	"	"	"	"		cont. trailed, 20"/hr S.
b	"	"	"	"	"	"	"	10:51	11:33.5	42.5m	"	2-3	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	11:38.5	12:29	50.5m	"	3-4					"	"	"	"	"	1w25	
N1710a	"	EM Cyg	19 37 10	+30 25	14.2	dG+sdBe	"	13:18	13:52.5	34½m	"	2-3	He 40+40				"	"	"	"	"		wide knot, cont trailed 45"/hr S
b	"	"	"	"	"	"	"	13:54	14:11	17m	"	2-3	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	14:13	14:33	20m	"	2-3					"	"	"	"	"	3w59	
N1711a	"	"	"	"	"	"	"	14:44	15:03	19m	"	2-3	He 40+40				"	"	"	"	"		cont trailed 50"/hr South
b	"	"	"	"	"	"	"	15:05	15:20	15m	"	2	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	15:22.5	15:44	21½m	"	2					"	"	"	"	"	5w10	
N1712a	"	EM Cyg	19 37 10	+30 25	14.2	"	Aug 4/5	8:38	9:05½	27½	"	2-3	He 40+40				"	"	"	"	"		14m, D76 cont trailed, 35"/hr/South; 25"/hr south @ 9:35 — clouds thinning
b	"	"	"	"	"	"	"	9:07½	9:33½	26	"	"	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	9:35½	10:07	31½	"	"					"	"	"	"	"	0E24	
N1713a	"	"	"	"	"	"	"	10:14	10:50	36m	"	3	He 40+40				"	"	"	"	"		cont trailed (stopped by clouds)
b	"	"	"	"	"	"	"	10:54	11:33	39m	"	3	A 30+30				"	"	"	"	"	1w03	
c	"	"	"	"	"	"	"																

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1912	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1714	RPK	EM Cyg	19 37 10	+30 25	14.2	dC sdBe	Aug 5/6	8:09	8:32	23	OK	2	He 40+40				8½	63B 7°30'	3"	6.93	IIa-O label		D 76, 12½ min
" b	"	"	"	"	"	"	"	8:33	8:58	25	"	"	A 30+30				"	"	"	"	"		cont trailed, orientation as N1702
c	"	"	"	"	"	"	"	9:00	9:29	29	"	"					"	"	"	"	"	E54	
N1715 a	"	"	"	"	"	"	"	9:36	10:08	32m	"	1-2	He 40+40				"	"	"	"	"		"
b	"	"	"	"	"	"	"	10:09	10:41	32	"	1-2	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	10:43	11:22	39	"	3-4					"	"	"	"	"	0W55	
N1716 a	"	"	"	"	"	"	"	11:30	12:08	38	"	"	He 40+40				"	"	"	"	"		" Ref. disturbance ~ 12:20!!
b	"	"	"	"	"	"	"	12:11	12:31	20	"	"	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	12:35	12:59	24	"	3					"	"	"	"	"	2W33	
N1717 a	"	"	"	"	"	"	"	13:06	13:34	28	"	3	He 40+40				"	"	"	"	"		
b	"	"	"	"	"	"	"	13:37	13:58	21	"	"	A 30+30				"	"	"	"	"		"
c	"	"	"	"	"	"	"	14:01	14:21	20	"	"					"	"	"	"	"	3W38	
N1718 a	"	"	"	"	"	"	"	14:30	14:50	20	1	3	He 40+40				"	"	"	"	"		
b	"	"	"	"	"	"	"	14:52	15:10	20	"	2	A 30+30				"	"	"	"	"		"
c	"	"	"	"	"	"	"	15:10	15:29	19	"	"					"	"	"	"	"	5W03	
N1719 a	"	DI Lac (1910)	22 34 15	+52 31	14.4	sdBe	Aug 6/7	12:28	13:45	78m	X½	3-4	He 40+40	300W	#10, 15m		"	"	"	"	"		D76, 12½ min (wide first)
b	"	"	"	"	"	"	"	13:47	14:19	32m	OK	"	A 30+30				"	"	"	"	"		DS Drive stuck @ ~13:00.
c	"	"	"	"	"	"	"	14:22	14:52	30m	"	"					"	"	"	"	"	1W33	
N1720 a	"	"	"	"	"	"	"	14:59	15:28	29m	"	4	He 40+40				"	"	"	"	"		Drive trouble
b	"	"	"	"	"	"	"	15:29	15:50	21m	"	"	A 30+30				"	"	"	"	"	2W31	
N1721 a	"	DI Lac (1910)	22 34 15	+52 31	14.4	sdBe	Aug 7/8	11:56	12:36	40m	"	2-3	He 40+40				"	"	"	"	"		wide first. 30"/hr slow changed to 40"/hr @ 12:18.
b	"	"	"	"	"	"	"	12:45	13:11	26m	"	"	A 30+30				"	"	"	"	"		trailed cont.
c	"	"	"	"	"	"	"	13:12	13:47	35m	"	"					"	"	"	"	"	0W31	
N1722 a	"	"	"	"	"	"	"	12:56	14:23	27m	"	"	He 40+40				"	"	"	"	"		trailed cont.
b	"	"	"	"	"	"	"	14:25	14:57	32m	"	"	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	14:57	15:39	42m	"	"					"	"	"	"	"	2W24	
N1723 a	"	"	"	"	"	"	Aug 8/9	11:19	11:52	33	"	2	He 40+40				"	"	"	"	"		trailed cont., orient. as 1722,
b	"	"	"	"	"	"	"	11:53	12:20	27	"	"	A 30+30				"	"	"	"	"	0E52	
N1724 a	"	"	"	"	"	"	"	12:54	13:20	26	"	3	He 40+40				"	"	"	"	"		trailed cond.
b	"	"	"	"	"	"	"	13:20	13:50	30	"	3	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	13:50	14:25	36	"	2-3					"	"	"	"	"	1W18	
N1725 a	"	"	"	"	"	"	"	14:34	15:04	30	"	2-3	He 40+40				"	"	"	"	"		trailed cont.
b	"	"	"	"	"	"	"	15:04	15:40	36	"	"	A 30+30				"	"	"	"	"		
c	"	"	"	"	"	"	"	15:41	15:50	09	"	"					"	"	"	"	"	2W39	

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1962	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1726	ASD	NGC 7332	22 35 30	+23 35			Sept 3	9:39	11:34	115		2	Ne	1½-½	A, 30m		14	101B 17°15	1.5	4.40	IIa-D	W 0:04	#16, PA= 70°. PH#6.
27	"	7331	22 35 12	+34 12				12:03	13:40	97					A							W 2:10	" PA = 75°. "
28	"	584	1 29 24	- 7 04				14:09	15:35	76												W 1:01	" PA = 35°. "
29	ASD	Arp* NGC6838	19 51 57	+18 40	~12	K	Sept 4	8:01	8:30	29		1-2	"	"	A, 24m		14	"	"	"	"	E 0:34	" PA = 90°. "
30	"	NGC 524	1 22 42	+ 9 20				11:58	14:58	180		2			A							W 0:45	" PA = 90°. "
31	ASD	β UMi	14 50 48	+74 18	2.2	K4	Sept 5	7:58	7:59	25s		2	"				"	"	"	"	IIa-D, 5, 1Δm	W 4:20	" " "
32		"						8:08	8:10	—											" "	W 4:31	" " " 15s 4 30s
33		β UMi	15 32 34	+77 29				8:36	8:38	—											" 2.5Δm	W 4:19	" " " 25s 4 50s
34		Arp* NGC6838	19 51 57	+18 40	~12	K		7:31	60:02	31											IIa-D	W 1:33	" " "
35		NGC 205	0 38 12	+41 28				10:29	14:42	235		2-3			A, 20m							W 0:59	" PA = 75°. "
36		NGC 221	0 40 30	+40 39				14:43	14:55	12		"			A							W 1:29	" PA = 65°. "
37		NGC 1068	2 40 31	- 0 11				15:21	15:42	21		2			A							W 0:15	" PA = 121°. "
38	ASD	R Cas	23 56 22	+51 10	~12	Mbe	Sept 6	10:56	11:13	17		3			B, 20m							E 1:26	" PA = 90°. PH #6.
39		NGC 224	0 40 31	+41 03				11:36	11:45	9												E 1:39	" PA = 130°. "
40		NGC 720	1 51 06	-13 56				12:09	15:32	203		3			C, 20m							W 0:59	" PA = 50°. "
41		P Per	3 02 36	+38 41	~3.5	M4		16:04	16:09	—	30s 60s	3-2			C							W 0:24	" PA = 90°. " Δm = 4.0
42	ASD	NGC 404	1 07 30	+35 25			Sept 7	11:30	13:12	102		1			C, 20m							E 0:35	#16 PA = 90°. PH#6.
43		1052	2 40 12	-8 23				13:37	15:18	101		1			C							W 0:08	" PA = 30°. "
44		M31	0 40 30	+41 03				15:40	15:52	12		1			C							W 2:34	" PA = 130°. "
45		P Per	3 02 36	+38 41				16:06	—	25s 50s		1			C							W 0:34	" PA = 90°. Δm = 5, 1
~~1746~~		Note: — Sept. 21, 1962						16:14	50s			1			C								" " "

Modification of 3" camera — Field flattener inserted in solid black. Scale, distortion will be changed beginning with No 1746

N1746	JL6	G 17-37	16 47 47	-1° 41	14.4	sdG	Sept. 21	7 29	8 14	50m		2	He 3 4 5 A	30 30 30 15 15	W1	70m	8	63B 2045	3"	6.80	IIa-D Bkd	E 3 54	
47	"	+28°4211 B	21 48 56	+28 37	15?	?	"	8 41 - 8 49	8 47 8 52	6 w blend 3 2nd	X	1-2	—		W1		"	"	"	"	"	E 0 39	Seeing too poor to resolve AB
48	"	G 129-P1 bt.	23 40 50	+14 30	15?	M	"	9 16	10 10	6.0	✓	2	"		W1		"	"	"	"	"	E 1 04	Took visually fainter
49	"	G 44-B5 ft. bt.	2 20 44	+22 14	15.6 9.2	DA DA	"	10 38	11 53	75m	✓	2-3	"		W1		"		"	"	"	E 2 11	several of x A in 2c
1750	JL6	G 29-23	23 17 06	+03 06	12	sdF	Sept. 22	7 33	8 05	32	✓	<1	He 4 5 A	45 45 45 45 45	W1	70m	8	64B 16°00	3"	6.80	IIa-D B&W	E 0 52	
51	"	Feige 108	23 13 36	-02 07	13.2	sdO DA	"	8 12	9 15	53	✓	1	He Ne A	30 30		"	"	"	"	"	"	E 1 40	
52	"	Feige 110	23 17 24	-05 26	11.5	DO	"	9 32	9 58	25	✓	2	"			"	"	"	"	"	"	E 0 59	Δ2
53	"	Feige 4	0 17 24	+13 36	15	DO	"	10 12	11 40	88	160	2	"			"	"	"	"	"	"	E 0 17	
54	"	G 129-P1 bt.	23 40 50	+14 30	15.5	sdM	"	12 09	13 11	70	✓	2	"			"	"	63B 7045	"	"	"	E 1 50	½ Δ1
1755	JL6	Case 3	23 29 12	+40 45	13.4	DA	Sept. 23	7 16	7 42	26		<1	He Ne A	30 30	W1	30m	8	63B 7045	3"	6.80	IIa-D B&W	E 3 35	Δ1
56	"	+13° 3224	16 45 48	+13 20	10.5	sdB	"	8 01	8 26	25		<1	"		W1		6	64B 14°00	"	"	"	E 4 04	Clds Δ2
57	"	+13° 3 224	16 45 48	+13 20	10.5	sdB	"	8 33	8 47	14		<1	"		W2	30m	6	64B 16°00	"	"	IIa-D Bkd	E 4 25	Clds Δ2
58	"	Feige 15	1 46 30	+13 18	10.6	sdB	"	9 07	9 39	23		1-2	"		W2		8	16°	"	"	"	E 3 53	Δ2
59	"	AC +9° 6-12	0 44 48	+09 43	110	AO	"	9 31	9 55	16		2	"		W2		"	10°	"	"	"	E 2 27	Δ2
1760	"	Feige 11	1 01 42	+03 58	11.5	sdB	"	10 09	10 37	30		2	"		W2		"	16°	"	"	"	E 2 41	Δ2
61	"	V Ma 2	0 46 32	+05 10	12.9	DG	"	10 57	12 48	111		2-3	He 4 5 A	45 45 30 30	Cld use dev	W2 ed foil sch	"	64B 13°30	"	"	"	E 5 20	Δ1

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1962	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1762	Kw	M31	0.40:35	+41° 04'			Sept.24	8:15	12:15	240m	x2	1-2	Ar+Ik	4"+4"	9	916	8	114 B 17° 15'	3'	675	IIa-O bkd	0h03	36°.7 90
63	"	M33	1:31:41	+30° 28'			"	12:50	16:00	190m	✓	2	"	"	"		"	"				3h58	329° nucleus SAB
64	"	M31	0:40:35	+41° 04'			Sept.25	8:02	12:02	240m	✓	2	"	"	"		"	"	"	"	"	0h07	332° nucleus SAB
65	"	M33	1:31:45	+30° 08'			"	12:41	15:09	148m	✓	2-3	Ne	3+3			"	114 B 18° 15'	"	"	103a-E	2h09	347° CG1
66		Nova Per. 1901	3:28:38	+43° 45'			"	15:39	16:35	56m	x3	2	"	"			"	"	"	"	"	1h40	29°.5
67		M31	0:41:38	+41° 03'			Sept 26	7:58	12:08	250m	x1.5	2-3	He Ne	15+15 15+15			"	98 B 5° 63 B 8°	"	"	103a-D IIa-O bkd	0h03 0h27	126°.6 10' f. nucleus major axis 306°.7 10' s.p. " " "
68	"	"	0:40:40	+40° 55'			Sept 27	7:25	12:27	302m	✓	1	He	15+15			"		"	"			
69	"	"	0:40:43	+41° 04'			"	12:35	13:05	30m	✓	2	"	"			"	"	"	"	"	1h05	" nucleus A2
70	"	Nova Per 1901	3:28:38	+43° 45'			"	13:0?	16:5?	180m	✓	2-1	Ne	3+3			"	114 B 18° 15'	"	"	103a-E	2h02	29°.5 Nebulosity around nova.
N1771	Sc	Radcliffe (B.-M.)	22 17 40	−28 6	18½		Sep 28	7:42	11:53	251m		1-2	He He	15+15 15+15			9	98 B 4° 30'	3"	6.80	IIaD bkd	2h20	270°.
72	"	3C 452 (a)	22 44 8	+39 29	18		"	12:27	16:13	226m		1-3					"	"	"	"	"	6h13	0°.
73	"	Radcliffe (B.-M.)	22 17 40	−28 6	18½		Sep 29	7:07	10:54	227m		2	"	"			"	"	"	"	IIaD bkd	1h26	270°.
74	"	3C 28 (b)	0 52 14	−3 46	19		"	11:50	11:15	265m		1-3					"	"	"	"	IIaD bkd	4h11	270°.
75	"	3C 444 (a)	22 12 25	−17 13	19		Sep 30	7:08	12:08	300m		3	"	"			"	"	"	"		2h46	0°.
76	"	3C 465 (d)	23 38 40	+28 50	15		"	12:35	14:05	90m		3	"	"			"	"	"	"		3h20	10°.
77	"	M33 mod + Hβ	1 31 50	+30 28			"	14:39	16:15	96m		3	"	"			"	"	"	"		3h36	310°.5.
78	"	3C 444 (a)	22 12 25	−17 13	19		Oct 1	7:21	11:00	219m		2-3	"	"			"	"	"	"	IIaD bkd	1h44	270°; interrupted for ½ hr.
79	"	3C 430 (a)	21 17 22	+60 39	18		"	11:16	14:35	199m		3-2	"	"			"	"	"	"	IIaD bkd	6h16	90°.
N1780	Z	Sup. N. NGC 6835	19-51-48	−12° 42'	16		Oct. 2	7h11	8h16	65m	✓	3	He 30+30	No 20+20			10	98 B 4° 30'	3"	6.80	103a-F	8h24	Supernova Wild Base 0°
1781	"	NGC 6835	19-51-48	−12° 42'			"	8:27	9:07	40m	✓	3	He 20+20				10	"	"	"	IIIa-O baked	2h14	" " 0°
82	"	Nova Cl 0024-0138	1-24-15	−1° 32' 48"			"	10:33	0:93	120m	✓	2-3	He 25+25				12	3° 30'	"	"	IIa-O baked	0h09	Member of cluster " 0°
83	"	NGC 1090	2-44-00	−0° 27'			"	1:43	4:15	152m	✓	3	"	"			12	"	"	"	" "	2h31	Seat of Supernova Rudnicki 0°
84	"	NGC 6835 SN	19-51-48	−12° 42'	16		Oct. 3	7:06	7:39	33m	✓	2	He 30	+30			10	"	"	"	" "	0h50	10m + 23m (widened) Base 270°
85	"	" "	"	"	"		"	7:49	8:21	33m	✓	2	"	"			"	"	"	"	" "	1h33	" " "
86	"	NGC 7609	23-16-54	+9° 14'			"	8:56	11:58	180m	✓	2	He 25+25				12	"	"	"	" "	1h42	Double wk double bridge Base 320°
87	"	NGC 1058	2-40-30	+37° 08'			"	1:30	4:18	168m	✓	2	"	"			12	"	"	"	" "	2h42	Base 0° Seat of Wild Sup. Nova.
88	"	Nova Cl 0024-0138	1-23-05	−2° 6'			Oct. 4	11:12	2:12	180m	More	1	He 25+25	No 10+10			12	4° 30'	"	"	103a-F	1h57	" 0° Much underexposed.
89	"	SN in NGC 6835	19-51-48	−12° 42'			Oct. 5	7:08	7:32	24m	✓	1	"	"			11	"	"	"	"	0h50	" 0° Stopped by Fog. Moore
1790	"	No. 3 in group	23-16-54	+9° 14'			"	8:52	11:52	180m	✓	2	He 25+30				"	3° 30'	"	"	IIa-O baked	1h42	galaxy No. 3 in group NGC 7609 " Base 350°
91	"	No. 13 in Cl 0024-0138	1-18-06	−2° 15'	14.3		"	0:12	1:12	60m	✓	3	He 25+25				"	"	"	"	" "	0h54	Base 0°
92	"	No. 57 " " "	1-18-48	−0° 48'	14.6		"	1:26	2:56	90m	✓	4	"	"			"	"	"	"	" "	2h45	"
93	"	SN in NGC 6835	19-51-48	−12° 42'	16		Oct. 6	7:00	8:02	60m	✓	2	He 25	Ne 10			"	40 3° 30'	"	"	103a-F	1h25	Base 0° SN Wild Moore
94	"	No. 64 in Cl 0024-0138	1-27-12	−1° 30'	14.9		"	8:25	9:55	90m	✓	2-3	He 30+25				"	3° 30'	"	"	IIa-O baked	2h17	" 270° Moore
95	"	" 65 " "	1-28-24	−1° 45'	14.8		"	10:07	11:07	60m	✓	3	He 25+25				"	"	"	"	" "	1h27	" 270° "
96	"	SN in NGC 1058	2-40-30	+37° 08	19.0		"	0:30	4:15	225m	✓	3-4	He 35	+35			9	"	"	"	" "	2h50	Base 180° (Supernova 96)
97	"	SN in NGC 6835	19-51-48	−12° 42'	16		Oct. 7	6:59	7:29	30m	✓	2	He 25	Ne 10			12	"	"	"	IIa-D "	0h55	" 180° Moore
98	"	Nova 58 in Cl 0024-0138	1-16-24	−1° 16'	15.0		"	8:01	9:01	60m	✓	2	He 25				12	"	"	"	IIa-O	2E57	" 180° Moore
99	"	No. 53 " "	1-25-30	−1° 0'	15.2		"	11:52	0:52	60m	✓	2-3	"				"	"	"	"	" "	0h45	" 180°
1800	"	No. 69 " "	1-31-36	−1° 17'	14.7		"	1:03	1:48	45m	✓	2-3	"				"	"	"	"	" "	1h25	" 180°
1801	"	SN-NGC 1058	2-40-30	+37° 08'	19.0		"	2:03	4:03	120m	✓	3-4	He 35	Ne 10			9	4° 30'	"	"	103a-F	2h41	" 180°

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NO.	OBS.	OBJECT	R. A. (1950)	DECL.	MAG.	SP.	DATE 1962	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
11 1802	Z	Supernova NGC 6835	19-51-48	-12°42'	15	Type I	23. X	6:47	7:47	60m	✓	2	He Ne	15+25 10+10			10	98B 4°10'	3"	6.80	IIa-D	2W17	Base 180°
1803	"	Arp double galaxy	23-26-08	+26°44'	16		"	8:09	9:39	90m	✓	2	He	30S+25S			11	" 30S0'	"	"	IIa-O	0W24	" 192°
04	"	gal. 86 in Cl 0024-0138	1-23-28	-1°31'48"	<16.0		"	10:01	11:31	90m	✓	2-3	He	30+30			12	"	"	"	"	0W30	" 180°
05	"	SN in NGC 1058	2-41-23	+37°12'30"	18.2	Type V	"	1:01	4:16	205m	✓	3+	He Ne	25+35 10+10			11	4°40'	"	"	103a-F	3W57	" 180° (Z-SN 96)
06	"	IC 5342	23-36-08	+26°44'04"	~16.0		24. X	6:41	7:41	60m	✓	2+	He	30S+30S			11	3°30'	"	"	IIa-O	1E30	" 180° (Member of group)
07	"	NGC 550	1-23-06	+1°45'42"			"	7:59	8:59	60m	✓	2-3	"	"			11	"	"	"	"	2E00	" 180° (Seat of Z-SN 104)
08	"	S60 Cl 0124-0138	1-19-42	-2°49'	15.3		"	9:13	10:53	90m	✓	2-3	He	25S+25S			12	"	"	"	"	00	" 180°
09	"	S73 " "	1-19-42	+0°40'	13.7		"	11:24	1:24	120m	✓	2-3	He	30S+30S			"	"	"	"	"	2W30	" 180°
1810	"	LP 414-10b	4-08-22	+19°47'50"	18.2		"	3:25	4:25	60m	30m	2-3	"	"			10	"	"	"	"	2W43	" 270° fast proper motion
N 1811	Sc	3C 382 (a)	18 33 40	+32 40	16		Oct 25	6:30	9:00	2½H		3	He Ne	15+75S 15+75S			9	98B 4°30'	3"	6.80	IIaD thd	4W55	Base 270°
12	"	3C 430 (a)	21 17 22	+60 39	18½		"	9:35	13:15	3H40m		2-3	"	"			"	"	"	"	IIaO thd	6W28	" 103.5°, through stars.
13	"	Pictor A	5 18 46	-45 49	17		"	13:56	16:26	2½H		2	"	"			"	"	"	"		1W36	" 0°.
14	"	3C 382 (a)	18 33 40	+32 40	16		Oct 26	6:37	7:37	1H		3	"	"			"	"	"	"	IIaD thd	3W37	" 270°.
15	"	3C 28 (a)	0 53 50	+26 13	19		"	8:08	12:08	4H		3	"	"			"	"	"	"		1W48	" 270°.
16	"	3C 147 (a)	5 39 43	+49 49	20		"	12:30	16:30	4H		4	"	"			"	"	"	"	IIaO thd	1W24	" 9°, through stars (3C 147(b)")
17	"	3C 20 (a)	0 41 05	+51 51	19		Oct 27	6:34	12:04	5½H		3	"	"			"	"	"	"	IIaD thd	2W01	" 90°.
N 1818	"	3C 147 (b)	5 39 43	+49 49	18		"	12:27	16:27	3H41m		3	"	"			"	"	"	"	"	1W25	" 39°, ok through faint (19") stars 2"; 2 exp
N 1819	URPK	EM Cyg	19 37 10	+30 25	14.2	Be	Oct 28/29	6:54	7:50	56m		2-1	He A	45+45 45+45			9½	63B 6°30'	3"	6.90	IIa-o baked	2W53	20"/hr sl; increased to 45" hr/sl
b	"	"	"	"	"	"	"	7:51	8:51	60m		1					"	63B 7°50'	"	"	"	3W55	
c	"	"	"	"	"	"	"	8:52	9:52	60m		1					"	"	"	"	"	4W56	
N 1820 a	"	GK Per (1901)	03 28 36	+43 47	13.8	G	"	11:20	11:55	35m		2-3	He A	45+45 45+45			"	64B 15°20'	"	"	"	0E52	32"/hr sl wide first
b	"	"	"	"	"	"	"	11:57	12:35	38m		"					"	"	"	"	"	0E13	25"
c	"	"	"	"	"	"	"	12:36	13:19	43m		"					"	"	"	"	"	0W39	25"
N 1821 a	"	"	"	"	"	"	"	13:31	14:21	50m		2	He A	45+45 45+45			"	"	"	"	"	1W34	25"
b	"	"	"	"	"	"	"	14:22	15:01	39m		1-2					"	"	"	"	"	2W15	30" → 40"
c	"	"	"	"	"	"	"	15:02	15:40	38m		1-2					"	"	"	"	"	2W53	25"/hr slow → 60"/hr
N 1822 a	"	"	"	"	"	"	Oct 29/30	8:24	9:10	46m		2	He	45+45			"	"	"	"	"	3E34	60-50
b	"	"	"	"	"	"	"	9:11	9:38	27m		2	A	45+45			"	"	"	"	"	3E06	50-45
c	"	"	"	"	"	"	"	9:38	10:12	34m		2					"	"	"	"	"	2E31	45"/hr slow
N 1823	"	"	"	"	"	"	"	10:19	10:49	30m		2	He A	45+45 45+45			"	"	"	"	"	1E54	clouds; stopped by clouds.
N 1824 a	"	EM Cyg	19 37 10	+30 25	14.2	"	Oct 30/31	6:33	7:10	37m		2	He	45+45			"	63B 7°50'	"	"	"	2W21	
b	"	"	"	"	"	"	"	7:10	7:45	35m		1-2	A	45+45			"	"	"	"	"	2W56	
c	"	"	"	"	"	"	"	7:45	8:25	40m		1-2					"	"	"	"	"	3W36	
N 1825 a	"	"	"	"	"	"	"	8:42	9:25	43m		1-2	He	45+45			"	"	"	"	"	4W37	
b	"	"	"	"	"	"	"	9:25	10:10	45m		1	A	45+45			"	"	"	"	"	5W23	
N 1826 a	"	GK Per (1901)	3 28 36	+43 47	13.8	"	"	11:30	12:03	33m		2-3	He	45+45			"	64B 15°20'	"	"	"	0E27	
b	"	"	"	"	"	"	"	12:03	12:40	37m		"	A	45+45			"	"	"	"	"	0W02	
c	"	"	"	"	"	"	"	12:41	13:24	43m		"					"	"	"	"	"	0W45	
N 1827 a	"	"	"	"	"	"	"	13:33	14:11	38m		"	He	45+45			"	"	"	"	"	1W34	
b	"	"	"	"	"	"	"	14:12	14:47	35m		"	A	45+45			"	"	"	"	"	2W06	

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1962	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 1827	CRPK	GK Per (1901)	3 28 51	+43 47	13.8	K+ sdBe	Oct 30/31	19:48	15:27	39^m		2-3	#		###		9½	64B 15°20'	3"	6.90	IIa-O baked	2^{h}49	
N 1828	"	"	"	"	"	"	"	15:37	16:12	35^m		"	He 45+45 A 45+45		300^w, #40, 15^m		"	"	"	"		3^{h}33	
1829	Z	Supernova NGC 1073	2-41-12	+1°10' ~	12.0	Type I	Nov. 27/28	7:58	8:08	10^m	✓	2	He+H				10	63B 7°30'	3"	6.80	IIa-O baked	1^{E}55	Base 168°.5 SN Halo-Clavius.
" a	"	" "	"	"	"	"	"	8:21	8:41	20^m	✓	2	50^s+50^s				"	"	"	"	"	1^{E}21	" 90° Trail E-W.
1830	"	#83, #84 in Cluster	1-19-30	−1°18'	15.0	Neb.	"	9:30	11:30	120^m	✓	3	He+H 20^s+20^s				12	98B 3°30'	"	"	"	2^{w}50	Base 155°.5
31	"	IC 2253	8-13-33	+21°34'		"	"	1:05	2:05	60^m	✓	2	"	"			"	"	"	"	"	1^{E}28	Base 180° Cancer Cluster
32	"	#10 in Cancer Cl.	8-24-03	+21°48'		"	"	2:19	3:19	60^m	✓	3	"	"			"	"	"	"	"	0^{E}25	" "
33	"	#28 " "	8-24-05	+21°52.7'		"	"	3:33	4:33	60^m	✓	3	"	"			"	"	"	"	"	0^{W}50	" "
34	"	E 62 in Cl 0134-0138	1-27-12	−2°14'	15.4	"	Nov. 28/29	6:41	8:11	90^m	✓	1-2	He 17^s+17^s				13	"	"	"	IIa-D	"	0^{E}33	"
35	"	E 50 " " "	1-22-19	−1°30'.5		"	"	8:30	10:30	120^m		1-2	" 20^s+20^s				12	"	"	"	"	1^{W}51	"
36	"	SN in NGC 1073	2-41-12	+1°10' ~	13.0	Type I	"	10:48	11:28	40^m	✓	1-2	He 40+40	Ne 10+10			10	#°40'	"	"	103a-F	1^{W}31	Base 270° Trailed, once.
37	"	NGC 2572	8-18-29	+19°18'		Neb.	"	1:32	3:02	90^m	✓	2	He 20+20				12	3°30'	"	"	IIa-O baked	0^{E}32	" 180° No. 14 in Cancer Cluster
38	"	IC 2340	8-20-33	+18°55'		"	"	3:15	4:05	50^m	✓	2	"	"			12	"	"	"	"	0^{W}29	" 180° No. 16 " " "
39	"	#19 & 20 Cancer Cl.	8-20-30	+21°30'		"	Nov. 29/30	0:20	1:20	60^m	✓	1	"	"			"	"	"	"	"	2^{E}12	" 211.5 IC 2338, 2339
1840	"	SN in NGC 1073	2-41-12	+1°10' ~	13.0	Type I	"	1:37	2:07	30^m	✓	1	He 80	Ne 20			10	4°40'	"	"	IIa-D	4^{w}14	" 0° Discovery Halo, Clavius, Rosino
41	"	#7 Cancer Cl.	8-21-03	+21°12'		Neb,	"	2:29	3:29	60^m	✓	1	He 20+20				12	3°30'	"	"	IIa-O	0^{E}10	" 180°
42	"	NGC 3899	11-46-30	+26°43' ~	13.0	stars	"	3:48	4:48	60^m	✓	1	"	"			"	"	"	"	"	2^{E}10	" 108°.5 Double Star, not galaxy
1843	MW	M31	0-42-30	+41°23'			Nov 30	7:22	11:22	240^m	✓	2-3	He 30+30				10	7°30'	3'	6.90	IIa-O bkd	3^{w}33	Base 307°.6 10' nf on major axis
1844	"	"	0-40-43	+41°04'			"	11:37	11:57	20^m	✓	"									"	4^{w}08	" meters
1845	"	"	0-41-22	+41°09'			Dec 1/2	8:41	9:51	70^m	✓	3	He 20+20				14	15°0'	1°.4	7.2	"	2^{w}05	" 5' nf on major axis
46	"	"	0-40-28	+41°08'				10:00	11:10	"	✓	3					"	"	"	"	"	3^{w}24	" 5' sf " " "
47	"	"	0-40-46	+41°04'				11:16	11:21	5^m	✓	2-3					"	"	"	"	"	3^{w}35	" meters
48	"	"	"	"				11:23	11:28	5^m	✓	2-3					"	119B 18°10'	"	"	"	3^{w}42	" meters
49	"	NGC 2403	7-33-12	+65°43'	Em		Dec 4/5	13:42	15:20	108^m	✓	3	Ne 4+4				4.9	"	"	"	103a-E	0^{w}47	Base 6°.5 Bande HII # 8, 9, 18
50	"	"	"	"	"	"	"	11:50	13:50	120^m	wk	1					"	"	"	"	"	0^{E}38	" 307° " HII # 19 & 2 np.
51	"	"	"	"	"	"	"	16:27	17:27	60^m	—	<1					"	"	"	"	"	2^{w}57	" 312° Humason HII # 14 sf
N 1952	Sc	3C 147 (B)	5 39 44	+49 50	18		Dec 26	7 34	12 04	4½^h	mk	0-1	He 15+15 Ne 15+15				9	48B 4°30'	3"	6.80	IIaD thk	0^{w}59	Base 87°.
53	"	3C 196 (a)	8 10 58	+48 20	16.8		"	12 49	17 20	4^{h}32^m	mk	0-1	"	"			"	"	"	"	"	2^{w}45	" 270°.
54	"	3C 147 (B)	5 39 44	+49 50	18		Dec 27	6 42	15 42	9^h		2					"	"	"	"	"	4^{w}41	" 87°, 3 exp of 3^m each.
55	"	3C 273 (B)	12 27 12	+2 15	13		"	16 13	17 13	1^h	morn	2					"	"	"	"	"	0^{E}35	" 270°; 40^m over ā1, 20^m over ā1.
56	"	3C 147 (B)	5 39 44	+49 50	18		Dec 28	6 42	11 07	4^{h}25		2					"	"	"	"	"	0^{w}09	" 87°.
57	"	3C 78 (a)	3 06 26	+3 58	13		Dec 29	6 22	6 52	30^m		2					"	"	"	"	"	0^{E}28	" 180°.
58	"	3C 147 (B)	5 39 44	+49 50	18		"	7 21	16 01	8^{h}40		2-1					"	63B 9°40'	"	"	"	5^{w}07	" 87°.
59	"	3C 273 (B)	12 27 12	+2 15	13		"	16 24	17 04	40^m		2					"	"	"	"	"	0^{E}36	" 270°; 80^m over ā2, 30^m on other ā2.
60	"	3C 147 (B)	5 39 44	+49 50	18		Dec 30	9 41	13 00	3^h		2-3					"	48B 4°30'	"	"	"	2^{w}10	" 89°.
61	"	3C 196 (a)	8 10 55	+48 20	N.8		"	13 30	16 00	2½^h		3					"	"	"	"	"	2^{w}40	" 89°.
62	"	3C 264 (a)	11 43 10	+19 49	13		"	16 19	17 09	50^m		3					"	"	"	"	"	0^{h}17	" 180°.

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1963	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 1863 a	RPK	GK Per (1901)	3 28 40	+43 47	13.8	sdBe +dG	Jan 19/20	6:50	7:50	60m	OK	0	He 45+45 A 60+60				9½	64B 15° 20'	3"	6.70	IIa-o baked C15	0h35	wide first D76, 13m
b	"	"	"	"	"	"	"	7:55	8:25	30m	x1.15	0					"	"	"	"	"	1h07	Stopped by high wind. D76, 15m
N 1864	"	"	"	"	"	"	"	12:10	13:27	77m	OK	-1	"				"	"	"	"	"	6h08	
N 1865 a	"	Z Cam	8 21 13	+73 14	13.5	sdBe	"	14:05	14:42	37m	"	0-1	He 30+30 A 45+45				"	63B 7° 50'	"	"	"	2h30	wide first
b	"	"	"	"	"	"	"	14:42	15:14	32m	"	1					"	"	"	"	"	3h04	
c	"	"	"	"	"	"	"	15:14	15:45	31m	"	0-1					"	"	"	"	"	3h34	Stopped by high winds.
N 1866 a	"	GK Per (1901)	3 28 40	+43 47	13.8	sdBe +dG	Jan 20/21	6:44	7:24	40m	"	1-2	He 45+45 A 60+60				"	64B 15° 20'	"	"	"	0h09	wide first
b	"	"	"	"	"	"	"	7:24	8:00	36m	"	1					"	"	"	"	"	0h45	
c	"	"	"	"	"	"	"	8:08	8:46	46m	"	1-0					"	"	"	"	"	1h32	
N 1867 a	"	"	"	"	"	"	"	8:54	9:55	61m	"	0-1	He 45+45 A 60+60				"	"	"	"	"	2h42	orientation as 1866
b	"	"	"	"	"	"	"	9:56	10:56	60m	"	"					"	"	"	"	"	3h42	
c	"	"	"	"	"	"	"	10:57	12:17	80m	"	0					"	"	"	"	"	5h02	
N 1868	"	"	"	"	"	"	"	12:25	13:43	78m	"	0-1					1'	"	"	"	"	6h36	
N 1869 a	"	Z Cam	8 21 13	+73 14	13.5	sdBe	"	14:15	14:45	30m	"	1-2	He 30+30 A 45+45		300", #10, 15m		"	63B 7° 50'	"	"	"	2h38	wide first
b	"	"	"	"	"	"	"	14:46	15:16	30m	"	1-2					"	"	"	"	"	3h08	
c	"	"	"	"	"	"	"	15:16	15:50	34m	"	1-2					"	"	"	"	"	3h44	
N 1870 a	"	"	"	"	"	"	"	15:57	16:30	33m	"	1-2	He 30+30 A 45+45				"	"	"	"	"	4h23	
b	"	"	"	"	"	"	"	16:30	17:00	30m	"	1-2					"	"	"	"	"	4h44	
N 1871	"	NGC 1952 Cluster	5 32 18	+21 59	~16		Jan 21/22	7:13	8:39	86m		2-3	He 30+30 A 45+45				8	"	"	"	"	0h36	Marked off window; orientation as 1870
N 1872	"	NGC 1952, nebulosity	"	"	~16		"	8:48	10:08	82m		"	"				"	"	"	"	"	0h53	" " "
N 1873 a	"	GK Per (1901)	3 28 40	+43 47	13.8	sdBe +dG	"	10:32	11:06	34m		"	He 45+45				9	64B 15° 20'	"	"	"	3h59	orientation as 1866
b	"	"	"	"	"	"	"	11:06	11:33	27m		"	A 60+60				"	"	"	"	"	4h23	
c	"	"	"	"	"	"	"	11:35	12:28	34m		"					"	"	"	"	"	4h58	
N 1874 a	"	"	"	"	"	"	"	12:16	12:47	31m		"	He 45+45				"	"	"	"	"	5h37	
b	"	"	"	"	"	"	"	12:48	13:17	29m		"	A 60+60				"	"	"	"	"	6h07	
c	"	"	"	"	"	"	"	13:47	13:45	28m		"					"	"	"	"	"	6h35	
N 1875 a	"	SU UMa	8 09 15	+62 43	14.5	sdBe	"	14:56	15:28	32m		"	He 30+30				"	63B 7° 50'	"	"	"	3h32	orientation as 1866
b	"	"	"	"	"	"	"	15:29	15:55	31m		"	A 45+45				"	"	"	"	"	4h04	
c	"	"	"	"	"	"	"	15:55	16:28	33m		"					"	"	"	"	"	4h37	
N 1876	"	"	"	"	"	"	"	16:34	17:10	36m		"					"	"	"	"	"	5h24	
N 1877	Se	3C 78 (a)	3 06 26	+3 58	13		Jan 22	6 40	7 40	1h		2	He 15+15 Ne 15+15				9	98B 4° 30'	3"	6.80	IIaD thd	6h56	Base 180°
78	"	Barnard 10	4 16 17	+28 08			"	8 43	10 47	2h04		2-3	"	"			"	"	"	"	"	2h52	" 0°2, through C2 and 3D Tau.
79	"	3C 147 (b)	5 39 43	+49 50	18		"	11 28	14 43	3h15		2	"	"			"	"	"	"	"	5h25	" 87°.
80	"	3C 273 (b)	12 27 12	+2 15	13		"	15 11	17 21	2h10		2	32	x2			"	"	"	"	103aF (CTD1)	1h17	" 270°.
81	"	3C 99 (a)	3 07 55	+16 57	19		Jan 23	6 31	11 31	5h		2	"	"			"	"	"	"	IIaD thd	4h48	" 270°.
82	"	3C 147 (b)	5 39 43	+49 50	18		"	11 51	15 51	4h		3-2	"	"			"	"	"	"	"	6h37	" 87°.
83	"	3C 273 (b)	12 27 12	+2 15	13		"	16 17	17 12	45m	WK	3-2	32	x2			"	"	"	"	103aF (CTD1)	1h02	" 270°; 30° over ½ Δ2 + 15° over Δ2.
84	"	3C 15 (a)	0 35 11	-1 21	16		Jan 24	6 28	8 28	2h		2-1	"	"			"	"	"	"	IIaD thd	4h20	" 270°.
85	"	MC 2203, #27	7 33 19	+65 41			"	8 58	10 58	2h		2-3	"	"			"	"	"	"	"	0h05	" 149°5 (through *)
86	"	3C 273 (b) jet	12 27 12	+2 15	19-20		"	12 10	17 20	5h10		1-4	"	"			"	"	"	"	"	1h24	" 223°.

CHARLES E. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

1963

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 1887	Z	Supernova NGC1073	2-41-12	+1° 10'	15.0	SNS	25.I.63	6:59	7:59	60m		1-2	He 30+30s Ne 10+10s				10	98B 4°30'	3"	6.80	103a-F	1W49	SN Type I Weak red. Base 210°
1888	"	Planetary	6-34-18	+24° 3'			"	8:57	9:57	60m		2	He+H 35+35s				"	3°30'	"	4	IIa-O	0W05	Base 180°
1889	"	Compact galaxy	11-49-12	+46° 1'	14.0		"	0:49	1:49	60m		1	" 30s+30s				11	"	"	"	"	1E27	" 90°
1890	"	Supernova	15-9-0	+5° 26'	18.0	SNI	"	3:19	5:00	101m		1-2	He 25+25s				13	"	"	"	"	1E37	" 151° Supernova in Shane Cloud.
1891	"	Compact galaxy	2-46-18	−0° 44'			27.I. "	6:34	7:34	60m		2	He 35+35				10	"	"	"	"	1W27	" 180°
1892	"	" "	1-20-36	+34° 19'			"	7:56	8:41	45m		2-3	" "				"	"	"	"	"	4W01	" 90°
1893	"	Anon galaxy	9-21-12	+39° 51'			"	9:04	10:44	100m		3	" 30s+30s				12	"	"	"	"	4W02	" 90° SN in Perseus.
1894	"	Supernova	12-55-23	+28° 9' 31"			"	1:03	2:03	60m		2-3	same				11	"	"	"	"	2E13	" 144° (in Coma Cluster)
1895	"	NGC 4146 SN	12-7-32	+26° 41' 51"				2:30	3:10	40m		2-3	He 35+35				"	"	"	"	"	0E27	" 147° (SN Rosino)
1896	"	Supernova Cor. Bor	15-25-00	+26° 39' 00"				3:31	5:11	100m		2-3	" 30+30				13	"	"	"	"	1E34	" 102°
1897	W	NGC 2403 Em 17	7-32-20	+65° 44'			Feb 15	8:01	10:35	157m	✓	2	He 75 75				8	64B 16°	3'	6.85	IIa-O bkd	0W56	Base 240°
1898	"	" nucl.	"	"			Feb 17	10:06	12:06	120m		2-3	" "				"	"	"	"	"	2W35	" 211° minor axis
1899	"	" Em 16	"	"			"	12:28	14:58	150m		3	" "				"	"	"	"	"	5W28	" 98°
1900	"	NGC 4594	12-32-32	−11° 19'			"	15:43	17:12	90m	✓	"	" "				"	119B 18°	"	"	103a-E	2W39	" 89° major axis OG filt
N 1901	Z	Supernova IC 1703	1-23-54	−1° 54'	17.0		18.II.	6:55	7:55	60m	✓	2	He 35+35				10	48B 30°30'	"	6.80	IIa-O	4W37	Base 270°
1902	"	II 12 Cancer Cl.	8-14-30	+21° 50'			"	9:29	10:59	90m	✓	3	" 30+30				12	"	"	"	"	0W51	Seat of Supernova No. 112 270°
1903	"	NGC 4496	12-29-6	+4° 12'			"	0:38	2:38	120m	✓	2-3	" "				12	"	"	"	"	0W15	Seat of SN 69 Base 360° 340°
1904	"	SN in IC 1703	1-23-54	−1° 54'	17.0		19. II.	6:47	7:57	70m	✓	2	" 35+35				10	"	"	"	"	4W44	Supernova in Cl. 0123-013E Base 270°
05	"	LP 357-186	4-09-24	+23° 47'	18.4		"	8:39	11:09	150m	✓	3	" 45s+45s				8	"	"	"	"	5W08	0.42 in 144° (Motion) Base 270°
06	"	NGC 4096	12-3-29	+47° 45.3'			"	0:41	1:41	60m	✓	3-4	" 35s+35s				10	"	"	"	"	0E13	Base 180°
07	"	Old nova	16-49-50	+77° 7.2'	18.0		"	2:53	4:43	110m	✓	2-3	" "				10		4	4	"	0E54	" 260° (Satyvaldiev's star).
08	"	SN in IC 1703	1-23-54	−1° 54'	17.0		20. II.	6:45	7:55	70m	✓	2	" "				10	"	"	"	"	4W46	Base 270°
09	"	LP 414-106	4-07-18	+19° 47'	17.6		"	8:28	10:51	143m		2-3	" 45s+45s				8	"	"	"	"	5W00	" 242°
1910	"	NGC 3221	10-19-37	+21° 50.8'			"	11:13	0:13	60m		3	" 35s+30s				11	"	"	"	"	0W07	" 270°
11	"	Compact galaxy	12-28-00	+12° 45'	14.5		"	1:41	2:21	40m		3	" 30s+30s				"	"	"	"	"	0W06	" 270°
12	"	(" " or star)	14-35-30	+29° 02'	13.9		"	2:40	3:10	30m		2	" "				"	"	"	"	"	1E11	" 270°
N 1913	JLG	Hya G 7-63	3-57 11	+18 54	15.4	sdG	Feb. 21	7 22	8 07	45	✓	2	He 30+30		W1	70m	8	98B 3°30	3"	6.90	IIa0 Bkd	2W38	Δ1
14	"	Hya G 7-112	4 07 10	+12 00	15.5	DA	"	8 19	9 4	52	✓	3	" Δ2c		W1		8	"	"	"	4¼ min	3W23	
15	"	G 111-71	8 17 26	+38 43	DA	16.9	"	10 15	13 15	180	✓	3	"		"		9	4	"	"	"	3W	Sky Bright DII RIGHT
16	"	G 111-72	"	"	DA	14.6	"	13 29	13 55	26	✓	3	"		"		8	4	"	"	"	3W56	City Lights?
17	"	L 1405-40 Red	11 48 11	+25 32	16.2	dM	"	14 19	15 41	90	✓	3	"		"		8	"	"	"	"	2W20	
18	"	L 1405-40 Blue	"	"	15.3	DA	"	15 53	16 33	40	✓	3	"		"		8	4	"	"	"	3W05	Dec. Sticks
19	"	LNGP-27	13 00 47	+22 54	13.0	sdA?	"	16 51	16 57	6	✓	3	"		"		8	"	"	"	"	2W16	Ident. Doubtful Could be DAss
N 1920	JLG	Hya G 7-63	3 57 11	+18.54	15.4	sdG	Feb 22	7 25	9 00	95	✓	1	"		W1	75m	8	63B 8000	3"	6.90	IIa0 Bkd	3W36	
21	"	Hya G 7-218	4 24 06	+16 17	13.9	dK	4	9 18	9 38	20	✓	K1	"		"		8	"	"	5½	"	3W35	Bright Em. Lines of IC 410 superimposed
22	"	G 86 B1-B	5 18 26	+33 19	16.4	DA	"	10 09	10 36	27	✓	<1	He 10+10 Ne 3+3		"		14	"	1.4	7.10	"	3W40	widened
23	"	G 117 B-15A	9 21 13	+35 30	15.8	DA	"	14 00	14 42	42	✓	<1	"		W2		14	8°15	"	"	"	3W44	
W 1924	JLG	G 5-28	3 15 42	+15 00	16.4	dM	Feb 23	7 19	8 19	60	✓	2	He 10 No 4-10		W1	75m	14	8°15	1.4	7.10	IIa0 Bkd	3W24	Sky Bright
25	"	G 39-27	4 33 42	+27 02	16.6	DA	"	8 44	9 44	60	✓	2	"		W1		"	3°45	"	"	"	3W35	
26	"	G 86-B1-Field	5 18 26	+33 19	16.4	DA	"	9:37	10 37	25	✓	2	"		W1			8 15	"	"	"	3W23	= IC 410 emission neb?

CHARLES R. NADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

NO.	OBS.	OBJECT	R. A. (1950)	DECL.	MAG.	SP.	DATE 1963	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1927	JLW	G 86-BL-B	5 18 26	+33 19	16.4	DA2	Feb 23	10 27	11 07	40	✓	2	Ne 10+10 Ne 4+4		W1		14	6338	1.4	7.10	IIa-0 Bkd	4W14	
28	"	G 88-32	7 27 39	+24 12	10.1	sdF	"	12 10	12 16	6	✓	2	Ne3 0+3 0 Ne,A 10+10		W1		8	"	3"	6.90	"	3W24	Δ2
29	"	G 117-B15B	9 21 13	+35 30	17.8	dM	"	12 37	14 39	122	✓	2	He 4+4 Ne 4+4		W2	25M	14	5435	1.4	7.10	"	3W45	
1930	"	G 61-16	12 44 48	+14 59	15.0	sdK	"	15 05	16 05	60	✓	2	He3 0+3 0 Ne,A 10+10		"			4	3.4	6.90	"	1W45	
31	"	LNGP-27	13 00 18	+27 57	13.0	sdB	"	16 16	16 44	28	✓	3	"		"				"	"	"	2W10	Δ2
N1932	SL	Dim nob	5 33 30	-5 24			Feb 24	7 57	8 27	30M		3-2	He 1+1M				9	488 4°30'	3"	6.85	IIaD bkd	1W24	Base 270° 04SA detail; 3"5 screen
33	"	NGC 3115	10 03 29	-7 31			"	9 17	14 04	3½H		2	He 15S+15S				15	6438 15°0'	1.4	7.10	IIaD bkd	2W32	" 315° 90" mf of nucleus
34	"	3C 273(B)	12 27 12	+2 15	13		"	14 49	16 45	116M		2-3	Ne 2+2M				9	488 7°00'	3"	6.85	IN, H2Dsens.+hyp	2W50	" 27° 1st Δ1 + 1st Δ2
35	"	3C 196(2)	8 10 50	+48 20	17		Feb 25	7 28	16 13	8¼45M		4-3	15+15S He 15+15S He				9	488 4°30'	3"	6.85	IIaD bkd	6W38	" 90° 50% Δ1 + 50% Δ1
N1986	AJD	NGC 4649	12 41 42	+11 46	10.6		Mar 22	9.78	10.48	80		2-1	Ne 4 15+15		A, 2nw, D10, 15M		2+12	4018 16°15'	1.4	7.10	IIa-D bkd	1E41	Base 10°. #16
1987	"	NGC 4472	12 28 06	+8 12	10.1		Mar 24	8:45	9:52	67		2	"		A, "	" 2M	"	"	"	"	"	2E16	" 75°, "
N1988	Z	Anon galaxy	8-21-0	+21° 8'	15	Neb.	27. III.	7:22	7:57	35M	✓	2	He 10S+10S				14	638 8°15'	1.4	7.10	IIa-0 bkd	0W07	galaxy 7a in Cancer Cl. Base 180° Cloudy
39	"	" "	8-24-19	+23° 03'	15	'b	"	8:13	8:55	35M	✓	2	" "				"	"	"	"	" "	1W03	" 11 " " "
1940	"	NGC 3221	10-19-37	+21° 50' 48"		"	"	10:35	11:00	25M	40M	2	" 16S				"	"	"	"	" "	1W13	Base 180° Cloudy.
N1941	HW	NGC 2403	7-33-57	+65° 38'		Em	Apr 22	7.46	9:16	90M		2-3	Ne 4+4S				8	1198 18°10'	3"	6.85	103a-E	3W57	278° Em Ht. 16 CG
42	"	NGC 4101	12-08-41	+39° 36'			"	13 24	14 59	90M	✓	1-2	HeiA 5M+3M				"	1198 16°	"	"	IIa-06kd	5W01	308° C 5870
43	"	NGC 6814	19-40-36	-10° 24'			"	15:11	16:15	64M	120	1-2	" "				"	"	"	"	"	1E10	24°
44	"	NGC 2403	7-33-23	+65° 34'			Apr. 23	7:39	8:39	60M	✓	2	He 1M+1M				"	888 16°10'	"	"	"	3W25	197° Em II
45	"	NGC 4151	12-08-41	+39° 36'				11:59	14:35	158M	✓	3	" "				"	"	"	"	"	4W47	90° trailed in Δ1
46	"	M101	1401-52	+54° 30'			"	14:44	16.86	82M	✓	3	" "				"	"	"	"	"	4W25	233° wides
47	"	NGC 4151	12-08-41	+39° 36'			Apr. 24	8.00	9:13	73M	½	2-1	" "		100W D10	40M	"	"	"	"	"	0E32	clads!!
48	Z	Anon galaxy	10-18-16	+21° 58.3'	16		27. IV.	7:55	8:40	45M	✓	2	He 10S+10S				14	638 8°15'	1.4	7.1	IIa-0 "	0W43	seat of supernova 102. Base 270
49	"	IC 3117	12-15-18	+26° 18.6	15		"	9:20	10:00	40M	✓	2-3	" 12+12				"	"	"	"	"	0E12	seat of Russian SN. Base 161°. Dome Stuck
N1950	"	#17 Hydra Cl.	10-34-43	-27° 55'	14		28. IV.	7:37	8:07	30M	✓	2	" 15S+15S				"	"	"	"	"	0W09	Base 180°. Moon
51	"	NGC 4871	12-57-00	+28° 14'	15.5		"	8:42	9:27	45M	✓	2-3	" "				"	"	"	"	"	0E53	" 150° " (Coma Cl.)
52	"	Anon galaxy	13-0-30	+27° 47.5'	17		"	11:06	0:06	60M	✓	2-3	" 18S+18S				"	"	"	"	"	1W42	" 180° " seat of supernova 116
53	"	" "	15-20-18	+28° 01	17		"	0:30	2:30	120M	✓	3-4	" 15S+15S				"	"	"	"	"	1W48	" 180° supernova 128 Cor. Bor. Cl.
54	"	#24 Hydra I Cl.	10-31-12	-26° 38'	15		29. IV.	7:35	7:50	15M	✓	3	" 15S+15S				"	"	"	"	"	0	" 180° Moon
55	"	NGC 3221	10-19-37	+21° 50.8'			"	8:13	8:28	15M	30M	3	" 18S+18S				"	"	"	"	"	0W49	" 180° "
56	"	Anon galaxy	13-21-42	-20° 52'			"	11:53	0:33	40M	✓	3	" 15S+15S				"	"	"	"	"	1W54	" 220° galaxy + very faint sup. Nov.
57	"	" "	15-19-54	+5° 34'			"	1:01	2:31	90M	✓	3-4	" "				"	"	"	"	"	1W53	" 320° " + " " "
N1958	HW	Uranus	10-13-52	+11° 47'			May 9/10	7:21	8:11	20,30M	✓	<1	Ne 3M		30M, 3W0M D16		8	648 14°	3"	6.85	IN+NH3	1W23	OG
59	"	"	"	"			"	8:55	10:19	12M,60M	✓	<1	" "				"	"	"	"	"	3W25	Thin clouds Fog!
60	"	"	"	"			May 11/12	7.25	7 46	3,6,12M	✓	<1	"	20S	10M, 2W0M D16		"	1198 17"	"	"	IIa-F	1W02	Seeing horrible! Δ3
61	"	Neptune	19-49-00	-14° 20'			"	11:49	12:12	10,15M	✓	<1	" "				"	"	"	"	"	0W53	Δ1c
62	Z	Supernova 131	12-10-12	+11° 09'	14.5		May 9/10	8:00	8:40	40M	✓	2	He 80S Ne 20S				9	988 4°30'	3"	6.85	103a-F	0W30	SN in NGC 4178 clouds. Base 208°
63	"	Double galaxy	11-48-36	+43° 22'			"	9:04	10:49	90M	✓	1-2	He 30+30				11	3°30'	"	"	IIa-0	3W01	Cloudy. Base 0°
64	"	Anon galaxy	15-26-00	+29° 11'			"	0:38	1:38	60M	✓	1+	"				13	"	"	"	"	2W10	Seat of supernova 121 Base 270°

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, ORIGINAL

NO.	OBS.	OBJECT	R. A. 1960	DECL.	MAG.	SP.	DATE 1963	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1965	JLG	L 1046-18A	12 14 48	+03 11	15.2	dM4	May 24/25	8^m25	10^m10	105	✓	2	Ne+Fe	40+40	W1	75^m	9	63B	3"	6.85	IIaO Blad	2^w00	Δ1 clds
66	JLG	Comet Alcock	13 48 08	+36 52	≈ 5	-	May 24/25	8^m27	9^m27	60	✓	<1	Ne	40+40	W1	70^m	9	63B	3"	6.85	IIaO Blad	0^m11	Δ3 140°/0 Tail Head clds
67	"	L 1408-19	12 57 30	+27 50	15.7	DA	"	9^m58	11^m28	90	✓	2	"		W1		"	8^m00	"	"	"	2^w37	Δ1 clds
68	"	G 140-81A	17 50 33	+09 49	10.6	dG5	"	12^m03	12^m12	3^m5	✓	<1	"		W1		4	"	"	"	"	1^m25	Δ2c 4 spkls clds
69	"	G 140-81B	"	"	15.8	DC?	"	12^m23	15^m24	181	240	<1	"		W1		"	"	"	"	"	3^m48	Δ1 Sky Bright Heavy clds
1970	JLG	+23°2622	13 48 30	+23 21	10.5	dG	May 24/25	12^m27	16^m41	1^m8	3	<1	He 60 Ne 30		W1	20^m	9	63B	3"	6.85	IIaO Blad	3^w06	Δ2c 4 spkls clds.
71	"	Ross 1024	13 48 26	+23 23	16.9	dM	"	12^m30	14^m29	99	50	<1	He 8+8		W1		18	63B	1.4	7.10	"	4^m54	Δ1 clds
72	"	G 142 B2B	19 11 20	+13 31	14.2 DA	DA	"	14^m50	15^m02	12	10	1	"		W1		18	63B	1.4	"	"	0^w07	Δ1
73	"	G 142 B2A	"	"	14.4	sdM	"	15^m05	15^m21	16	12	1	"		W1		18	63B	1.4	"	"	0^w23	Δ1
1974	JLG	G 43-50	10 25 25	+05 52	13.7	sdG	May 23/24	7^m57	8^m18	21	✓	1	He 30+30 Ne 20		W1		9	63B	3"	6.85	IIaO Blad	2^w09	Δ1
75	"	G 43-53	10 26 23	+06 01	13.0	sdM	"	8^m35	8^m38	13	✓	1	"		"		"	"	"	"	"	2^w07	Δ1 close pair - Sp is 477
76	"	L 1046-18B	12 14 20	+03 14	15	DA	"	8^m51	9^m52	61	✓	<1	"		"		"	"	"	"	"	0^w54	Δ1, Spectrum contaminated by A2
77	"	G 14-57 = Ross 47	13 27 59	-08 30	16	dM	"	10^m20	11^m21	41	✓	1	He 8+8		"		15	63B	1.4	7.10	"	1^m50	Δ1
78	"	H 243B	13 14 28	+29 19	16	?	"	11^m23	12^m06	43	NG	1	"		"		"	"	"	"	"	3^w01	Δ1 Close pair. Completely contaminated by A
79	"	LP 439-36	14 12 03	+15 42	16	DA	"	12^m40	13^m30	70	✓	2	"		"		"	"	"	"	"	4^w06	Δ1
1980	"	G 142 B2B	19 11 20	+13 31	14.2	DA	"	14^m31	14^m56	25	✓	3	He 30+30 Ne 20+20		"		9	3"	6.85	"		0^w43	Δ1
81	"	G 142 B2A	"	"	14.4	sdM	"	15^m01	15^m24	23	✓	3			"		9	"	"	"		0^w30	Δ1
N1982	SC	3C 286(b)	13 29 28	+30 42	17		May 24	8^m22	11^m52	6^h30		2-3	30+30	30+30			12	48B	3"	6.85	103aF (H, 2')	5^w42	Base 270°
83	"	3C 245(a)	10 40 48	+12 15	18		May 25	8^m13	11^m23	3^h		2	15+15	15+15			1	48B	"	"	IIaD Hkd	4^w57	" 288°
84	"	3C 433	21 22 05	+24 55	17		"	12^m05	15^m05	3^h		1-2	15+15	15+15			1	"	"	"	"	1^m51	" 209°
85	"	3C 245(a)	10 40 48	+12 15	18		May 26	8^m10	11^m10	3^h		1-2	10+10	10+10			15	48B	1.4	7.10	103aF (H, 3')	4^w58	" 270°
86	"	SN Bertaud	11 48 47	+55 34			"	11^m57	12^m12	15^m		1-2	5+5				14	63B	"	"	IIaD Hkd	4^w53	" 23°
87	"	Cyg A	19 58 13	+40 38	18		"	13^m	15^h	2^h10		3-4	15+15	15			9	3"	6.85	"	IIaD Hkd	0^m18	" 205°
88	"	3C 273(b)	12 27 12	+2 15	12.8		May 27	8^m04	8^m45	41^m		1	15+15				9	48B	"	"	IIaD Hkd	0^w50	" 270°, Image over ½ Δ2.
89	"	SN Bertaud	11 48 47	+55 34	12½		"	9^m15	9^m33	18^m		1	15+15	15+15			9	48B	"	"	IIaD Hkd	2^w17	" 90° " " "
1990	"	MSH 11-01.21(a)	11 53 57	-11 00	17		"	9^m59	14^m10	3^h13		1-2	15+15	15+15			9	"	"	"		3^w50	" 270°, interrupted by fog 10^m-11^m.
N1991	AJD	Sgr. Star Cld	18:10	-29°			June 17	12:35	14:25	1^h50^m			Ne	2+2			2+24	48B	1.4	7.10	IIa-D blad		#16. Spectrog. fed by heliostat 47' f.l. lens.
1992	"	Ditto	18:10	-29°			18	9:05	12:35	3:30			He	15+15									#16. Ditto.
		Sky	20:10	-29°			18	12:43	14:05	1:22							2+12						#16 out for comp.
		Sgr. Star Cld	18:10	-29°			19	9:00	12:30	3:30							2+12						#16,
		Sky	20:10	-29°			19	12:36	14:14	1:52							2+24						"
		Sgr. Star Cld	18:10	-29°			20	8:45	12:15	3:30			Ne	2 at start			2+12						" ; out for comp.
		Sky	20:10	-29°			20	12:19	14:25	2:06			He	15 at start			2+24						#16;
N1993a	RHK	V 1017 Sgr	18 29 39	-29 26	15pg	sdBe+K	July 24/25	9:07	10:04	57^m	OK	2	He 45+45				9	64B	3"	6.85	IIa-o baked CIK	0^m04	
b	"	"	"	"	"	"	"	10:04	11:04	60^m	OK	3-4	A 60+60				"	"	"	"	"	0^w56	
c	"	"	"	"	"	"	"	11:05	12:07	62^m	OK	3					"	"	"	"	"	1^w59	
N1994a	"	DI Lac	22 34 17	+52 31	14.3	sdBe	"	13:41	14:45	64^m	a	3-4	He 45+45				"	"	"	"	"	0^w32	
b	"	"	"	"	"	"	"	14:45	15:47	62^m	"	3	A 60+60				"	"	"	"	"	1^w34	

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1963	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N1995a	RPK	T CrB	15 57 57	+26 01	11.	sdBe+gM3	July 25/26	9:00	9:02	2m		2-3	He 45+45				9	64B 15°20'	3"	6.85	IIa-o baked C1K2	0h30	
b	"	"	"	"	"	"	"	9:06	9:10	4m		"	A 60+60				"	"	"	"	"	0h38	D 76
c	"	"	"	"	"	"	"	9:11	9:19	8m		"					"	"	"	"	"	0h47	21m
N1996a	"	DI Lac	22 34 17	+52 31	14.3	sdBe	"	9:45	10:59	74m		1-2	He 35+45				"	"	"	"	"	3E10	
b	"	"	"	"	"	"	"	11:00	11:58	58m		2	A 60+60				"	"	"	"	"	2E12	
c	"	"	"	"	"	"	"	11:58	12:59	61m		2-3					"	"	"	"	"	1E09	
N1997a	"	"	"	"	"	"	"	13:13	14:13	60m		2	"				"	"	"	"	"	0W05	
b	"	"	"	"	"	"	"	14:13	15:13	60m		2					"	"	"	"	"	1W05	orientation as N1996
c	"	"	"	"	"	"	"	15:14	15:42	28m		2					"	"	"	"	"	1W34	trailed 1/2
N1998a	"	HD131511	14 51 48	+19 18	6.0		July 26/27	8:27	8:45	—		3					7	"	"	"	"	2W23	2m, 5m, 10m, 5.0m screen D19
N1999a	"	HD134066SW	15 05 06	+9 25	6.8	v	"	9:12	9:30	—		2					"	"	"	"	"	2E54	2m, 5m, 10m, 4.0m screen 5½
N2000a	"	HD134066NE	15 05 06	+9 25	6.8		"	9:47	10:05	—		2					"	"	"	"	"	3W39	2m, 5m, 10m, 4.0 screen
N2001a	"	DI Lac	22 34 17	+52 31	14.3	sdBe	"	11:47	13:05	79m		1-4	He 45+45				9	"	"	"	"	0E59	
b	"	"	"	"	"	"	"	13:06	14:08	62m		3-4	A 60+60				"	"	"	"	"	0W03	
N2002	"	CP Lac	22 14 19	+55 26	15.4	sdBe	"	15:18	15:51	33m		2-3	He 60, A80				"	63B 7°50'	"	"	"	2W07	
N2003	"	HD115043	13 12 05	+56 55	7.2	G5V	July 27/28	7:55	8:13	—		4-2	—				7	"	"	"	"	3W34	3.5 mag screen, 2m, 5m, 10m
N2004	"	80 UMa	13 23 44	+55 11	4.2	A5V	"	8:27	8:36	—		2	—				"	"	"	"	"	3W39	5.1 mag screen, 30s, 1m, 2m
N2005	"	45 Boo	15 05 39	+25 02	5.4	F5V	"	8:40	8:58	—		1-2	—				"	"	"	"	"	2W25	5.1 mag screen, 2m, 5m, 10m
N2006	"	HD131511	14 51 48	+19 18	6.0		"	9:16	9:33	—		3	—				"	64B 9°50'	"	"	"	3W15	4.0 mag screen 2m, 5m, 10m
N2007	"	HD134006SW	15 05 06	+9 25	6.8		"	9:74	10:01	—		3-2	—				"	"	"	"	"	3W29	3.0 mag screen 2m, 5m, 10m
N2008	"	HD134006NE	"	"	"		"	10:07	11:29	—		4-5	—				4	"	"	"	"	3W51	" " " " " "
N2009a	"	CP Lac	22 14 19	+55 26	15.4	sdBe	"	11:35	12:05	30m		3	He 30+30				9	63B 7°50'	"	"	"	1E36	
b	"	"	"	"	"	"	"	12:05	12:36	31m		4	A 45+45		300W #10, 5m		"	"	"	"	"	1E05	D76
c	"	"	"	"	"	"	"	12:36	13:16	40m		"					"	"	"	"	"	0E15	wide at end 21m
N2010a	"	"	"	"	"	"	"	13:27	13:58	31m		"	"				"	"	"	"	"	0W18	
b	"	"	"	"	"	"	"	14:02	14:28	26m		"	"				"	"	"	"	"	0W47	orientation as N 2009
c	"	"	"	"	"	"	"	14:24	14:58	32m		"					"	"	"	"	"	1W17	
N2011	"	"	"	"	"	"	"	15:10	15:37	29m		"	He 30+30, A 45+45				"	"	"	"	"	1W59	
N2012	"	HD131511	14 51 48	+19 18	6.0		July 28/29	8:16	8:35	—		4	—				6	64B 15°20'	"	"	"	2W20	3.1 mag screen, 2m, 4m, 12m
N2013	"	HD134066SW	15 05 06	+9 25	6.8		"	8:45	9:03	—		4	—				4	"	"	"	"	2W34	2.0 " " , 2m, 4m, 12m
N2014	"	" NE	"	"	6.8		"	9:09	9:27	—		4	—				"	"	"	"	"	2W58	" " " " " "
N2015	"	HD199776	20 58 54	-8 29	8.2		"	9:43	9:48	—		2-3	—				"	"	"	"	"	2E39	no screen 30s, 1m, 3m
N2016	"	HD204734	21 27 13	+64 14	8.8		"	10:00	10:08	—		3	—				"	"	"	"	"	2E43	" , 1m, 2m, 6m
N2017a	"	CP Lac	22 14 19	+55 26	15.4	sdBe	"	12:01	12:37	36m		2-3	He 30+30				9	63B 7°50'	"	"	"	1E30	
b	"	"	"	"	"	"	"	12:37	13:14	37m		"	A 45+45				"	"	"	"	"	0E23	dome cut off!!
c	"	"	"	"	"	"	"	13:15	13:59	44m		"					"	"	"	"	"	0W22	trailed orientation as N 2009 cent.
N2018a	"	"	"	"	"	"	"	14:13	14:58	45m		"	He 30+30				"	"	"	"	"	1W21	
b	"	"	"	"	"	"	"	14:59	15:32	33m		"					"	"	"	"	"	1W58	
c	"	"	"	"	"	"	"	15:32	15:52	20m		"	A 45+45				"	"	"	"	"	2W45	

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, ADELAIDE

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N 2019a	RPL	CP Lac	22 14 19	+55 26	15.5	sdBe	Aug 12/13	8:19	9:27	68m		2	He 30+30				9	63B 9°52'	3"	6.85	IIa-o baked	3E12	Wide first 15"/hr slow 5:19; 30"/hr slow 8:36; 45"/hr slow 8:43; 60"/hr slow 8:49 — 9m D19
b	"	"	"	"	"	"	"	9:27	9:58	31m		2	A 45+45				"	"	"	"	"	2E40	
c	"	"	"	"	"	"	"	9:59	10:34	35m		3					"	"	"	"	"	2E05	
N 2020a	"	"	"	"	"	"	"	10:46	11:22	36m		3	He 30+30				"	"	"	"	"	1E16	?
b	"	"	"	"	"	"	"	11:23	11:57	34m		2	A 45+45				"	"	"	"	"	0E42	orientation as 2019
c	"	"	"	"	"	"	"	11:58	12:23	25m		1					"	"	"	"	"	0E15	
N 2021a	"	"	"	"	"	"	Aug 13/14	7:46	8:46	60m		2	He 30+30				"	"	"	"	"	3E18	
b	"	"	"	"	"	"	"	8:46	9:29	43m		2	A 45+45				"	"	"	"	"	3E06	orientation as 2019
c	"	"	"	"	"	"	"	9:29	10:11	42m		2-3					"	"	"	"	"	2E23	
N 2022a	"	"	"	"	"	"	"	10:20	10:59	39m		4	He 30+30				"	"	"	"	"	1E35	Clouds @ 11:18 & 11:28
b	"	"	"	"	"	"	"	11:00	11:44	44m		4	A 45+45				"	"	"	"	"	0E50	as 2019
c	"	"	"	"	"	"	"	11:45	12:20	35m		"					"	"	"	"	"	0E15	
N 2023	"	"	"	"	"	"	"	12:29	13:10	41m		"	He 30+30 A 45+45				"	"	"	"	"	0W36	
N 2024	JLG	L 1498-127	4h 55 42	+33 52	15.1	DA	Aug 15/16	8:17	9:37	80		1			W1	70m	8	63 B 2°30	3"	6.85	IIaO 1924	0W30	CIDS
25	"	G 92-6	19 27 12	+00 55	12.5	sdF	"	9:59	11:24	25		<1	He 45+45 Ne 20+20		"		7	"	"	"	"	0W45	CIDS, Lightning
26	"	L 1002-62	21 30 54	-04 46	13.9	DB	"	10 37	11 18	41		1	"		"		7	"	"	"	"	0E26	
27	"	PHL 25	21 29 12	-17 32	14.4	sdB	"	11 31	11 43	12		1	"		"		7	"	"	"	"	0W02	
28	"	G 93-48	21 49 53	+02 09 +24 35	12.8	DA	"	12 58	12 28	30		2	"		"		7	"	"	"	"	0W26	
29	"	G 130-59	0 82 37	+30 52	15.4	sdB	"	12 47	14 38	101		2	He 30+30		W2	70m	7	"	"	"	"	0W04	CIDS
N 2030	JLG	Ton 788	15 12 18	+24 21	13.0	sdB	Aug 16/17	8 05	8 50	45	✓	2	He 45+45 Ne 30+30		W1	70m	7	64B 16°00	3"	6.85	IIaO Blue	3W29	
31	"	V 1017 Sgr	18 29 39 1963	-29 26	14	Nov	"	9 09	10 24	75	X3	1	He 45+45 Ne 30+30		"		7	"	"	"	"	1W40	
32	"	L 1002-62	21 30 54	-04 46	14	DB	"	10 40	12 40	120	✓	2	"		W2		7	64B 16°30	"	"	"	1W02	
33	"	-21°6378	23 09 54	-21 23	9.6	B	"	13 01	13 07	6	✓	2	He 60+60 Ne 45+45		W2		7	"	"	"	"	0E10	
34	"	G 29-33	23 23 39	+08 37	12.1	sdM	"	13 20	13 49	29	✓	3	"		W2		7	"	"	"	"	0W47	CIDS
35	"	V Ma 2	0 46 32	+05 10	12.4	sdG	"	14 02	15 55	118	✓	3	He 60+60 Ne 60+60		W2		9	64B 19°00	"	"	"	1W23	
2036	JLG	Ton 803	15 44 00 1963	+25 18	13.9	sdO	Aug 17/18	8 04	9 15	74	✓	1-3	He 45+45 Ne 45+45		W1	70m	8	64B 16°00	3"	6.85	IIaO Blue	3W27	
37	"	M15-III-67	21 28 06	+11 59 42	16.0	HBA	"	9 40	15 20	320	✓	4	"		W1		8	"	"	"	"	3W30	
38	"	-70°230	1 24 30	-06 33	11.0	B8	"	15 36	15 48	12	✓	4	"		W1		8	"	"	"	"	0W20	Δz
2039	JLG	M15-III-67	21 28 06 1963	+11 59 42	16.0	HBA	Aug 18/19	7 56	14 00	424	✓	2-4	He 45+45 No 60+60		W2	75m	8	64B 16°00	3'1	6.85	IIaO Blue	2W28	Last 2 hrs on wrong star (Yerkes - north)
40	"	G 130-60	0 14 18	+24 04	15.2	dM	"	14 35	15 52	77	✓	4	He 45+45 Ne 30+30		"		"	63B 20°30	"	"	"	1W39	RA drive erratic OK - no effect
N 2041	Sc	3C 352 (a)	17 09 42	+46 04			Aug 19	7 58	10 58	3H		2-3	He 15+15, Ne 15+15				9	48B 4°30'	3"	6.85	IIaD (C252) thd	2W51	Base 90°
42	"	3C 436 (a)	21 42 34	+28 00			"	11 48	15 48	4H		3-4	"	"			"	"	"	"	"	4W13	" 270°
43	"	3C 353 (a)	17 18 39	- 0 57			Aug 20	7 48	10 00	2H12		3	"	"			"	"	"	IIaD (C1D2) thd	"	2W49	" 270°
44	"	3C 17 (a)	0 37 28	- 2 20			"	10 48	13 00	2H12		2-3	"	"			"	"	"	IIaD (C252) thd	"	1E29	" 270°
45	"	3C 33	1 06 57	+13 08			"	13 15	15 45	2H30		3	"	"			"	"	"	"	"	0W47	" 270°
46	"	3C 445 (a)	22 21 57	-2 18			Aug 21	7 53	10 30	2H37		2	"	"			"	63B 8°30'	"	"	"	1E40	" 270°
47	"	Ann. star	0 54	+89 18			"	11 15	12 30	1H15		2	"	"			"	48B 4°30'	"	"	"	2E11	" 270°; misident. of 3C N3
48	"	3C 48	1 35 37	+32 58			"	12 00	15 50	3H		2	"	"			"	"	"	"	"	0W27	" 270°
49	"	3C 345 (a)	16 41 46	+39 49			Aug 22	7 44	8 14	30m		2	"	"			"	"	"	"	"	1W48	" 0°
N 2050	"	3C 436 (a)	21 42 34	+28 00			"	8 47	15 47	7H		2	"	"			"	"	"	"	"	4W20	" 332°8

CHARLES R. MABLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1963	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2051	AJD	NGC 554	1:19.4	-7°04'	11.4		Aug 29	13:05	14:16	71		3	Ne	7	B 200w, D16, 2.5"		2x12	1.4/18	1.4	7.1	IIa-D bkd	0E 3	#16. Base 325°
N2052	"	NGC 1052	2:39.1	-8 26	11.6		"	14:5	16:19	55		3	"	"	B,		"	4	"	"	"	0W 23	" " 210°
N2053	"	NGC 524	1:22.7	-19 20	11.6		Aug 30	13:57	16:[illegible]	125		1	"	"	C, 200w, D16, 27.5"		"	"	"	"	"	"	" " 270°
N2054	Sx	3C 62(a)	2 13 52	-13 09	19		Sep 19	12:59	16:14	195		1-2	Ne 15+15 He 15+15				9	6.8 B 4.0 B	3"	6.85	IIaD bkd (2252)	2W 07	Base 270°.
2055	"	3C 459(a)	23 44 44	+3 53	18		" 20	7:25	11:45	200		3	"	"			"	"	"	"	"	0W 40	" " ; Stopped by fog 7:48-8:48
2056	"	3C 17(B)	00 36 28	-2 20	19		" 20	12:35	16:15	220		3-1	"	"			"	"	"	"	"	3E 29	" D
2057	"	3C 456(a)	23 10 36	+9 07	19½		" 21	7:53	10:53	180		2-3	"	"			"	"	"	"	"	0E 04	" 270°.
2058	"	3C 43(a)	01 27 59	+23 27	19½		" 21	11:56	15:56	240		4	"	"			"	"	"	"	"	2W 43	" " "
N2059	RDK	377-1943 Sge	20 10 20	+20 13	~10		Oct 20/21	7:00	7:48	48M		0-2	He 45+45 A 60-60				9	6.3 B 15°58'	3"	6.70	IIa-0 baked	1W 16	
N2060a	"	T Aur	5 29 40	+30 25	15.2	+18c	"	9:47	10:23	36M		0	He 30+30				"	6.3 B 7°50'	"	"	"	4E 58	wide limit
b	"	"	"	"	"	"	"	10:29	11:04	35M		1-2	A 45+45				"	"	"	"	"	7E 18	
c	"	"	"	"	"	"	"	11:05	11:35	30M		1-2					"	"	"	"	"	3E 47	
N2061a	"	"	"	"	"	"	"	11:47	12:18	31M		2	"				"	"	"	"	"	3E 03	orientation as 2060
b	"	"	"	"	"	"	"	12:21	12:53	32M		1-2	"				"	"	"	"	"	2E 28	
c	"	"	"	"	"	"	"	12:53	13:28	35M		1-2					"	"	"	"	"	1E 53	
N2062a	"	"	"	"	"	"	"	13:37	14:07	30M		2	"				"	"	"	"	"	1E 14	"
b	"	"	"	"	"	"	"	14:10	14:39	29M		2					"	"	"	"	"	0E 43	
c	"	"	"	"	"	"	"	14:40	15:05	25M		2-3					"	"	"	"	"	0E 16	
N2063a	"	"	"	"	"	"	"	15:14	15:49	35M		2-3					"	"	"	"	"	0W 29	"
b	"	"	"	"	"	1'	"	15:52	16:22	30M		2	"				"	"	"	"	"	1W 02	
c	"	"	"	"	"	"	"	16:27	16:54	27M		2-3					"	"	"	"	"	1W 33	
2064	HW	M31	0-40-13	+40°55'			Oct 21	6:50	10:50	240"	c	3	He 30+30				9	6.3 B 7°50'	3"	6.8	IIa-0 bkd	0W 22	Base 307°.6 10' sp nucleus,
65	"	" nucleus	0-40-50	+41°05'			"	10:56	11:21	25"		3	"				"	"	"	"	"	0E 53	" out of focus n.g.
66		M1	5-32-26	+22° 0'			"	11:53	13:33	100"	vc	3	"				"	12.8 15°0'	"	"	"	1E 46	" 41°
67	"	M1	"	"			"	13:40	17:20	200"		1-2	A 1+1				9	6.3 B 17°	3"	6.8	"	1W 58	" 41°
N2065	ASD	M31 nucleus	0-40-36	+41°05'			Oct 24	8:26	11:29	3h		1	Ne 3+1½ He 0.20		A, P12, D16,5"	2+12		1.4/18 16°55'	1.4	7.1	IIa-D bkd	1E 12	#16. Base 22°.
2069a	"	HD 157881	17-23-08	+2 10	7.2	1.7E	Oct 25	8:04	8:07	3		2	—		A								
b	"	"						8:08	8:17	—	5	"	—										
2070	"	M32, 5" S. pnuc.	0-40-30	+40 39	—	—	"	9:53	9:48	15		2	Ne 1½ +1½		A, P12, D16,5"		"	"	"	"	"		Base 65°
71	"	NGC 772	1 57 01	+19 49			"	2:41	4:23	101		"	"		B, 200w, D10, 27"		"	"	"	"	"	2E 55	" " 36°
72	"	NGC 1302	3 18 06	-26 12			"	14:53	16:50	97		"	"		B		"	"	"	"	"	2W 50	" " 270°
73	"	NGC 1407	3 38 24	-18 42			Oct 26	3:33	5:54	—	10/4	3	"		A, 200w, D16,5"		"	"	"	"	"	2W 11	" Base 270°
74	"	NGC 1332	3 24 42	-21 27			Oct 28	4:38	5:52	74		1	"		DD, dark		"	"	"	"	"		
N2075	HW	M31	0-41-09	+41°07'			Nov 8/9	6:42	8:42	120"	c	2	He 40+40				9	6.3 B 8°	3"	6.8	IIa-0 bkd	0E 39	Base 307°.6 3' n f nucleus
76	"	"	0-40-48	+41°03'				9:08	11:28	140"	c	2	"	"			"	"	"	"	"	1W 13	" " 3' sp "
77	"	"	0-40-54	+41°05'				11:38	11:58	20"	c	"	"	"			"	"	"	"	"	2W 41	" nucleus
78	"	M1	5-32-26	+22°01'				12:33	14:43	130"	30C	2	He 45+45 Ne " "				"	6.3 B 1930' 8.3 B	"	"	IIIa-J	0W 36	59°.7 λ5300A region
79	"	M31	0-40-34	+40°58'			Nov 9/10	6:30	10:57	267"	c	1	He 45+45				"	8°	"	"	IIa-0 bkd	1W 45	Base 307°.6 8' sp nucleus
80	"	"	0-41-00	+41°05'			"	11:11	11:26	15"	c	1	"	"			"	"	"	"	"	2W 13	" nucleus

1963

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N 2081	Z	Compact galaxy	00-59-42	+30°27'	16	Pec	12. XI.	9^h25^m	9^h55^m	30^m	60^m	3	He+He	30+30			11	988 / 30°30'	3"	6.80	IIa-D	0^h35^m	Base 270°
82	"	LP 768-500	1-45-45	-17°26.3	18.3	"	"	10^h33^m	1^h03^m	150^m	200^m	3-4	"	45+45			8	"	"	"	"	2^h57^m	Ult v dwarf - Base 0°
83	"	Compact galaxy	1-01-12	+29°52'	15	"	13. XI.	11^h09^m	0^h09^m	60^m	✓	1-2	"	30+30			11	"	"	"	IIa+O baked	2^h51^m	Base 270°
84	"	galaxy SN 140	2-33-12	+35°44'	17	Neb	"	0^h36^m	2^h06^m	90^m	✓	2	"	25+25			13	"	"	"	" "	3^h16^m	Base 270° strong sky glow
85	"	NGC 3656	11-20-49	+54°07'	13	Neb	"	3^h52^m	5^h00^m	68^m	✓	2^+	"	25+25			13	"	"	"	"	2^E38^m	Base 270° seat of SN 133 (Bertaud)
86	"	Compact galaxy	00-59-42	+30°27'	16	Pec	14. XI.	6^h43^m	7^h43^m	60^m	✓	1^-	"	30+30			12	"	"	"	"	1^E29^m	" 270°
87	"	galaxy SN 136	1-23-30	+34°27'	14.1	Neb.	"	8^h03^m	9^h03^m	60^m	✓	2^-	"	30+30			12	"	"	"	"	0^E35^m	" 270° (SN Gates)
88	"	LP 768-500	1-45-45	-17°26.3	18.3	Pec	"	9^h37^m	10^h51^m	52^m	90^m	2	"	45+45			8	"	"	"	"	0^W51^m	" 0°, Clouds
89	"	Supernova 134	2-44-42	+37°22'	18	Type I	"	10^h09^m	2^h07^m	60^m	✓	2	"	35+35			10	"	"	"	"	3^W09^m	" 90° (SN Reaves)
2090	"	NGC 3913	11-47-50	+55°37'	14.7	Neb.	13 Dec	3^h26^m	4^h40^m	74^m	120^m	2	"	30+30			13	"	"	"	"	3^E20^m	" 90° Heavy Clouds, Fog. [SN 132]
N 2091	JLG	G 129-D 13	23 40 50	+14 30	14.8	sdA	Nov 16	6^h48^m	8^h04^m	76	✓	1	45+45 He 20+20 Ne / 15+15 He 10+10 Ne		W1 75^m C1J1		9	638 / 2°30'	3^a	6.85	IIaO Bkd	0^h17^m	Δ1
92	"	G 5-28	3 15 42	+15 00	16.9	dM	"	8^h30^m	10^h30^m	120	✓	1	"		W2 75^m C1J2		13	"	1.4	7.00	IIaO Bkd	0^h51^m	Δ1
93	"	G 95-59	3 46 45	+43 18	15.5	dMp	"	10^h35^m	11^h37^m	42	✓	<1	"		W2		"	"	"	"	"	0^E15^m	Δ1
94	"	"	"	"	"	"	"	12^h10^m	14^h21^m	131	✓	<1	45+45 He 20+20 Ne		W1		8	"	3^a	6.85	"	2^W29^m	Δ1
95	"	G 95-57A	3 43 37	+41 17	89	sdK	"	14^h28^m	14^h30^m	2	1	<1	"		W1		11	"	"	"	"	2^W41^m	Δ2
96	"	G 102-34	5 51 05	+12 24	15.9	DC	"	14^h59^m	15^h41^m	42	30	<1	He 15+15 Ne 10+10		W3 C1J2		12	705°	A4	7.00	"	1^W45^m	Δ1
97	"	G 107-70	7 27 00	+48 19	15.6	DC	"	16^h02^m	16^h42^m	40	✓	<1	"		W3		4	"	"	"	"	1^W40^m	Δ1
98	"	G 107-69	7 27 00	+48 19	15.2	dM	"	16^h47^m	17^h12^m	25	180	<1	"		W3		4	"	"	"	"	1^W11^m	Δ1
99	JLG	G 28-13	22 40 31	-01 43	16.2	DA	Nov 17	6^h47^m	8^h02^m	75	✓	0	"		W1 C1J2 new		12	"	"	"	IIaO Bkd new	1^W20^m	Δ1 clds
2100	"	G 7-21 Hya.	3 47 12	+09 15	14.1	Gp	"	9^h24^m	9^h59^m	35	30	0	"		W1 75^m		11	"	"	"	"	0^E52^m	Δ2 clds
01	"	G 94-9	1 43 56	+21 40	15.2	DA	"	10^h12^m	10^h49^m	30	20	1	"		W1		"	"	"	"	"	1^W01^m	Δ1
02	"	40 Eri C	4 13.00	-07 44	=12.5	dMe	"	11^h07^m	11^h14^m	1,2,4	10	1	45+45 20+20		W1		8	"	3	6.85	"	1^E01^m	Δ2
03	"	LP 658-2	5 52 42	-04 09	15.7	dMe	"	11^h42^m	14^h42^m	180	✓	1-2	"		W2 75^m		11	"	"	"	"	6^W49^m	Δ1 Sub-random Emission Nebula
04	"	G 111-B 9A	8 14 33	+37 56	14.5	dK	"	15^h01^m	15^h52^m	51	✓	3	"		W2		"	"	"	"	"	0^E23^m	Δ1
05	"	G 111-B 9B	"	"	16.1	sdG	"	16^h09^m	16^h59^m	50	✓	3	15+15 20+20		W2		12	"	1.4	7.00	"	0^W36^m	Δ1
06	JLG	G 128-72	23 29 33	+26 42	15.2	DA+M	Nov. 18	6^h36^m	6^h54^m	18	✓	5	"		W1 C1J2 23^m		12	638 / 8°00	1.4	7.00	IIaO Bkd new	0^E33^m	Δ1
07	"	G 34-49B	1 42 32	+23 03	17.3	DC	"	7^h15^m	9^h15^m	120	✓	4	"		W1		14	"	"	"	"	0^E35^m	Δ1 (Note: Plate of G 34-48 A ruined by slides of comparison box)
08	"	3C 48	1 35 23 1963	+32 57	16.0	Pec	"	11^h05^m	12^h35^m	90^m	120	3	He 10+10 Ne 5+5		W2 45^m		12	498 / 40°40'	"	"	103aF3	3^W02^m	Δ1
09	"	G 95-59	3 46 45 1950	+43 18	13.4	dMp	"	13^h00^m	14^h23^m	83	130	1	30+30 20+20		W2		8	"	3"	6.85	"	2^W38^m	Δ2
2110	"	G 107-70	7 27 06	+48 19	15.6	DC	11	15^h37^m	17^h04^m	93	✓	2	"		W2		4	"	"	"	"	1^W40^m	Δ
11	JLG	G 130-7	23 42 28	+30 03	13.1	sdG	Nov 19	8^h46^m	9^h06^m	20	10	0	He 15+15 Ne 30+30		W2 C1J2 75^m		11	"	4	"	IIaO Bkd	1^W30^m	Δ1
2112	Sc	3C 47(a)	1 34 26	+20 46	17½		Nov 20	7^h55^m	10^h32^m	157^m		1-2	He 15+15 Ne 15+15				9	488 / 4°30'	3"	6.85	IIaD Bkd	1^W13^m	Base 280°
13	"	M 03-1.9	3 49 49	-14 36	17		"	11^h00^m	13^h33^m	153		2-1	"				"	"	"	"	"	1^W55^m	" 248°
14	"	3C 245(a)	10 40 48	+12 15	18		"	12^h22^m	16^h58^m	156		1-2	"				"	"	"	"	"	1^E26^m	" 270°
15	"	3C 47(a)	1 34 26	+20 46	17½		Nov 22	6^h20^m	13^h00^m	400		2-3	"				"	"	"	"	"	3^W45^m	" 279½°; after 4^h23^m moved 0.15 mm.
16	"	3C 245(a)	10 40 48	+12 15	18		"	13^h20^m	17^h00^m	220		2-3	"				"	"	"	"	"	1^E20^m	" 270°
17	"	3C 47(a)	1 34 26	+20 46	17½		Nov 23	6^h27^m	12^h00^m	330		3-2	"				"	"	"	"	"	2^W50^m	" 270°
18	"	3C 153	6 06 48	+48 05			"	13^h4^m	15^h35^m	121		2-0	"				"	"	"	"	"	1^W38^m	" 75°; stopped by clouds
19	"	3C 33	1 06 58	+13 08	16		Nov 24	7^h09^m	9^h37^m	148^m		2	"				"	"	"	"	"	0^W57^m	" 180°
2120	"	3C 132	4 54 33	+22 46			"	10^h00^m	12^h55^m	111^m		1	He 15		He 15		"	"	"	"	"	0^E24^m	" 273°; stopped by high winds

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, ORIGINAL

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N2121	Sc	3C 47 (a)	1 34 26	+20 46			Dec 6	6h41	11h41	300m		1-2	Ne	both[5]			15	48B 6°	14"	7.05	103a H (C183) Hβ[5]	3h20	Base 270° some thin clouds
22	"	3C 132	4 54 33	+22 46			"	13 25	16 39	204		2	He Ne	15+15 45+45			9	4°30' "	3"	6.85	IIaD thin	4h00	" 273°
23	"	3C 47 (a)	1 34 26	+20 46			Dec 7	6h4	12h45	391		2	He Ne	15+15 60+60			9	5°30' "	"	"	103a H (C183) Hβ[5]	4h30	" 270°
24	"	3C 153	6 06 48	+48 05			"	13h17	16h17	180		2-1	He Ne	15+15 15+15			9	4°30' "	"	"	IIaD thin	3h28	" 75°
25	"	3C 268.1 (a)	11 58 31	+73 12			"	16h34	16h50	12+4		2	He Ne	30 30			9	" "	"	"		0E50	" 90°
N2126	"	3C 147 (b)	5 39 46	+49 50			Dec 8	8h29	16h29	480		1-2	He Ne	2+2 20+20			9	" "	"	"	103a F (C143) Hβ[3]	4h00	" 87°
N2127	Sc	3C 62 (b)	2 13 53	−13 09			1964 Jan 10	17h01	18h01	180		1	He Ne	15+15 15+15			9	4°30' 4°30'	3"	"	IIaD thin (C282)	3h19	Base 270°, high clouds.
28	"	3C 245 (a)	10 40 50	+12 15			"	10h31	17h31	420		1	" "	" "			9	" "	"	"	103a F (C143) Hβ[3]	2h23	" 270°, " " .
29	"	3C 147 (b)	5 39 48	+49 50			Jan 11	6h44	15h44	540		2-1	He	15+15			12	8°30'	"	"	IIaD thin (C182)	5h41	" 87°, " " .
30	"	"	"	"			Jan 12	6h23	16h07	584		2	He Ne	5+5 5+5			15	11°30'	1.4	7.00	103a F (C143) Hβ[4]	6h07	" 87°
31	"	SN Kowal	9 51 08	+36 14			"	16h30	17h30	60		2-1	He	5+5			15	8°	"	"	IIaD thin (C182)	3h20	" 350°
32	"	3C 147 (b)	5 39 48	+49 50			Jan 13 Jan 14	6h27 6h15	16h05 16h00	490 585		1-2	He Ne	30+30 15+15			12	98B 4°30'	3"	6.85	103a F (C143) Hβ[3]	4h08 4h08	" 87°. Total exp. 1075m
N2133	"	3C 293 (B)	12 27 15	+02 15			"	16h36	17h33			2-1	He Ne	15+15 15+15			9	" "	"	"	IIaD thin (C282)	8h55	" 180°; 4 exp: 15m, 4m, 12m, 36m
34	JLG	G 34-48	1 42 32	+23 03	14.5	dM	Jan 15	6h32	8h02	70		1-2	He Ne	45+45 20+20	W1	70m	9	63B 4°15	3"	6.85	IIaD Bld (C143)	2h40	Δ1
35	"	LB 1497	3 49 06	+24 47	16.0	DA	"	8h26	10h26	120		2-1	"	"	W1		9	"	"	"	"	2h28	"
36	"	G 4ya 7-138	4 12 24	+14 57	16.8	DA	"	11h10	12h48	98		1-0	He 15 Ne 10	+15 +10	W1		15	7°45	1.4	7.00	"	4h28	"
37	"	G 111-72	8 16 48	+38 44	16.9	DA, F	"	13h19	15h19	120		0-1	He 15	+15	W1		15	7°30	"	"	"	2h53	"
38	"	G 148-60	12 24 27	+27 18	16?	dMe	"	15h53	17h32	99		3	He 45 Ne 10	+3 -10	W1		9	5°30	3"	6.85	"	2h49	
2139	"	G 148-59A	12 24 24	+27 18	9?, 13	dG?	"	17h43	17h48	2m 1m		4	He Ne	90 40	W1		9	" "	"	"	"	2h05	Δ2, 140" AB Thin; 1 Trail Δ1 Cam
2140	JLG	G 134-22	2 13 48	+42 44	16.9	DC	Jan 16	7h02	8h32	90		5	He 15 Ne 10	+15 -10	W1	75m	13	63B 7°30	1.4	7.00	IIaO Bld C1K2	2h12	Δ1
41	"	G 39-27	4 33 42	+27 02	16.6	DC?	"	8h49	9h49	60		4	"	"	"		13	"	"	"	"	1h11	Δ1
42	"	G 102-39	5 51 05	+12 24	15.9	DC	"	10h45	12h50	125		3	He 45 Ne 20	+45 +20	"		9	5°45	3"	6.85	"	2h44	Δ1 wide pair. No contamination
43	"	G 116-16	9 13 26	+44 12	15.5	DA, F	"	13h09	15h14	130		2	"	"	"		9	"	"	"	"	1h36	N1 Clds.
44	"	G 116-14	9 11 52	+44 16	9.7	.16	"	15h25	15h24	1m 2m	1	3	"	"	"		7	"	"	"	"	2h13	Δ2 Clds Two opt.
45	"	G 148-59A	12 24 44	+27 18	= #1	dK	"	15h36	15h42	3 6	3	3	"	"	"		7	"	"	"	"	0E46	Δ2 Clds. Two opt.
46	"	G 148-59B	"	"	= 11.5	dM	"	15h50	15h53	3	1	3	"	"	"		7	"	"	4	"	0E37	Δ1 Clds.
47	"	G 148-6	11 43 24	+32 06	13.7	DA	"	16h06	16h31	25		4	"	"	"		9	"	"	"	"	1h44	Δ1 Clds
48	"	G 148-7	"	"	15.7	dM2	"	16h33	17h17	44		4	He 15 Ne 10	-15 -10	"		13	7°30	1.4	7.00	"	2h38	Δ1 Hazy Clds.
49	JLG	Feige 24	2 29 36	+02 47	11.6	Bkg	Jan 17	6h54	7h19	25		1	He 45 Ne 20	+45 +20	W1	75m	7	63B 8°15	3"	6.85	IIaO Bld	0h46	Δ2
2150	"	Feige 23	2 32 30	+03 31	12.3	DAB	"	7h34	7h49	15		1	"	"	"		7	"	"	"	"	1h17	Δ2
51	"	G 5-43	3 29 00	+14 10	13.8	sdM4+1	"	7h59	8h39	40		1	"	"	"		7	"	"	"	"	1h08	Δ1
52	"	G 7-17	3 58 42	+18 36	17.2	dM5	"	9h00	11h06	126		1	He 15 Ne "	+15 +10	"		12	7°45	1.4	7.00	"	3h06	Δ1 Clds · DK?
N2153	RPIC	CP Pup (1942)	8 10 24	−35 14	~15	sdBe	Jan 19/20	10:40	11:18	38m		1-0	He 30 A 45	+30 +45			10	63B 8°00	3"	6.85	IIaO blend (C143)	0E45	No [O III]. Strong He II. with first.
b	"	"	"	"	"	"	"	11:18	11:47	29m		1-2					"	"	"	"	"	0E16	
c	"	"	"	"	"	"	"	11:47	12:14	27m		2					"	"	"	"	"	0W12	
2154 a	"	"	"	"	"	"	"	12:30	12:58	28m		2	He 30 A 45	+30 +45			"	"	"	"	"	0W55	Orientation as N 2153.
b	"	"	"	"	"	"	"	12:58	13:30	32m		2					"	"	"	"	"	1W28	
c	"	"	"	"	"	"	"	13:30	14:08	38m		2					"	"	"	"	"	1W58	
N2155	"	SY Cnc	8 59 01	+18 03	~13	"	"	15:35	16:01	26m		2	He 30 A 45	+30 +45			8.5	"	"	"	"	2W09	

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1964	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2156a	RPK	EX Hya	12 50 27	-29 03	13.5	sdBe	Jan 19/20	16:37	17:06	29m	OK	1-2	He 30+30 A 45+45				8.5	63B 8°00'	3"	6.85	IIa-o baked (IC)	0W25	Orientation as N 2153. cont. trailed
b	"	"	"	"	"	"	"	17:06	17:31	25m	"	2					"	"	"	"	"	0W50	
c	"	"	"	"	"	"	"	17:31	17:45	14m	"	2					"	"	"	"	"	1W04	
N2157a	"	T Leo	11 36 36	+3 34	~15	"	Jan 23/24	14:22	15:05	43m	"	0-1	He 30+30 A 45+45				10	"	"	"	IIa-o baked (CIE)	0E02	wide first. Very ghostly.
b	"	"	"	"	"	"	"	15:05	15:49	44m	"	0					"	"	"	"	"	0W37	some clouds
c	"	"	"	"	"	"	"	15:49	16:31	42m	"	0-1					"	"	"	"	"	1W18	
N2158	"	"	"	"	"	"	"	16:43	17:29	46m	XLS	0	He 30+30 A 45+45				"	"	"	"	"	2W17	
N2159a	"	EX Hya	12 50 27	-29 03	13.5	"	Jan 24/25	15:45	16:17	32m	OK	2	He 30+30				8	"	"	"	"	[illegible]	Cont. trailed
b	"	"	"	"	"	"	"	16:18	16:47	29m	"	2-	A 45+45				"	"	"	"	"		
c	"	"	"	"	"	"	"	16:48	17:25	37m	"	2-1					"	"	"	"	"	1W02	
2160	Z	Supernova 145	3-14-48	+40° 10'	17	Type I	16. II.	7:14	8:46	90m	"	1-2	He 30+30				13	98B 3°30'	3"	"	"	3W28	Supernova + galaxies (2) Base 63°
61	"	LP 475-247	4-37-45	+9° 19' 6"	17	Pygmy	"	9:18	10:16	60m	100	0-1	He 45+45				9	"	"	"	"	4W38	Luyten discovery
62	"	Supernova 143	9-50-18	+36° 18'	18	Nova	"	0:11	2:44	150	200	1-2	He 30+30				13	"	"	"	"	2W52	New Type SN + galaxy, Base 168°
63	"	Supernova (147)	16-3-48	+17° 35'	16	Type I	"	3:18	4:50	90	O.K	2-3	"	"			"	"	"	"	"	1E15	galaxy + supernova. Base 242
2164a	RPK	Z Cam	8-21-20	+73 14	13.2	dGe	March 13/14	7:25	7:53	28m		0-1	He 30+30 A 45+45				9.5	63B 8° 00'	3"	6.75	IIa-o baked CIE	0E50	wide first
b	"	"	"	"	"	"	"	7:55	8:05	10m							"	"	"	"	"	0E37	stopped by fog.
2165a	"	"	"	"	"	"	"	11:25	11:57	32m		0-1	He 30+30 A 45+45				"	"	"	"	"	3W17	orientation as 2164.
b	"	"	"	"	"	"	"	11:58	12:23	25m		0-1					"	"	"	"	"	3W42	
c	"	"	"	"	"	"	"	12:24	12:39	10m		0					"	"	"	"	"	3W53	stopped by high wind.
2166a	"	CP Pup	8-10-24	-35 14	~15	sdBe	March 14/15	7:04	7:41	37m		1-2	He 30+30 A 45+45				"	"	"	"	"	0E45	wide first
b	"	"	"	"	"	"	"	7:42	8:22	40m		"					"	"	"	"	"	0E04	not cont trailed
c	"	"	"	"	"	"	"	8:22	9:05	43m		2					"	"	"	"	"	0W40	
2167a	"	"	"	"	"	"	"	9:16	9:54	38m		0-2	He 30+30 A 45+45				"	"	"	"	"	1W28	orientation as 2166.
b	"	"	"	"	"	"	"	9:54	10:35	41m		1					"	"	"	"	"	2W10	
c	"	"	"	"	"	"	"	10:35	11:13	38m		"					"	"	"	"	"	2W48	
2168a	"	TW Vir (Cragg)	11 43 05	-4 15	~14		"	12:15	12:40	25m		2-3	He 30+30				"	"	"	"	"	0W41	wide first
b	"	" (Mayall)	"	"	"		"	12:43	13:18	35m		2-3	A 45+45				"	"	"	"	"	1W18	
c	"	" (A)	"	"	"		"	13:26	13:57	31m		2-3					"	"	"	"	"	1W59	
2169	"	NGC 5466, #L	14 03 49	+28 42	14	gF0	"	15:01	16:50	109m		2-3	He 45+45 A 60+60				"	64B 15° 20'	"	"	"	2W35	
2170a	"	Z Cam	8-21-20	+73 14	13.2	sdBe	March 15/16	7:03	7:29	26m		1	He 30+30				"	63B 8° 00'	"	"	"	1E05	wide first
b	"	"	"	"	"	"	"	7:29	8:01	32m		1	A 45+45				"	"	"	"	"	0E32	
c	"	"	"	"	"	"	"	8:02	8:29	27m		1					"	"	"	"	"	0E04	
2171a	"	"	"	"	"	"	"	8:38	9:05	27m		1-2	He 30+30				"	"	"	"	"	0W33	orient as 2170
b	"	"	"	"	"	"	"	9:06	9:39	33m		1-2	A 45+45				"	"	"	"	"	1W06	
c	"	"	"	"	"	"	"	9:39	10:08	29m		"					"	"	"	"	"	1W36	
2172a	"	"	"	"	"	"	"	10:21	10:47	26m		"	He 30+30				"	"	"	"	"	2W14	orient. as 2170
b	"	"	"	"	"	"	"	10:47	11:15	28m		"	A 45+45				"	"	"	"	"	2W42	
c	"	"	"	"	"	"	"	11:15	11:44	29m		0-1					"	"	"	"	"	3W12	
2173a	"	"	"	"	"	"	"	11:55	12:37	42m		0-1	He 30+30				"	"	"	"	"	4W05	orient as 2170
b	"	"	"	"	"	"	"	12:37	13:03	26m		0-1	A 45+45				"	"	"	"	"	4W31	Stopped by high winds

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1964	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
2174	Z	Compact Galaxy	8-24-18	+55°52'		Abs. + Em.	16. III.	7h44	8h44	60 min	o.k.	1-2	H+He	30+30			13	98 B 3°30'	3"	6.75	IIIa-o baked	0E11	Base 180°
75	"	IC 2565	10-18-13	+28°11'		"	"	11 39	1 00	81 min	100	1-2	"	"			"	"	"	"	" "	2W32	Base 257° Double Galaxy
76	"	Anon galaxy	8-28-24	+56°02'		K	17. "	7 02	7 52	50 min	✓	2	"	35+35			12	"	"	"	" "	0E42	" 180° [compact or star superposed]
77	"	" "	9-01-00	+55°43'		K	"	8 09	9 09	60 "	✓	3-4	"	4			"	"	"	"	" "	0W54	" 180° " " "
78	"	" "	9-43-18	+45°59'			"	9 25	10 25	60 "	✓	4	"	"			"	"	"	"	" "	0W37	" 180° compact
79	"	Supernova Loves	11-56-30	+52°59'	15	Type I	"	10 48	10 58	10 "	5 min.	4	"	80 5			10	"	"	4	" "	1E54	" 193°. in anon galaxy.
2180	"	NGC 3631 + SN	11-18-18	+53°28'	18	" V	"	11 23	0 53	90 "	✓	4	"	50+50			"	"	"	"	" "	1W31	" 180° SN 137 (Wild)
81	"	Compact Galaxy	12-32-30	+48°01'			"	2 54	3 34	40 "	✓	4	"	35+35			12	"	"	"	" "	2W58	" 90°
82	"	" "	13-42-24	+37°28'			"	3 55	4 40	45 "	✓	4	"	"			"	"	"	"	" "	2W54	" "
83	"	Anon galaxy	9-56-00	+52°29'			18. III.	7 05	7 35	30 "	✓	2	"	"			"	"	"	"	" "	2E22	" 270° Moon
84	"	" "	8-28-24	+56°02'			"	7 51	8 21	30 "	✓	4	He 35+35	Ne 10+10			"	98 30'	"	"	IIa-D	0E09	" 180° " (stellar core)
85	"	" "	9-01-00	+55°43'			"	8 39	9 09	30 "	✓	4	"	"			"	"	"	"	103a-F	0W07	" 180° " (+ star ?)
86	"	Supernova Loves	11-56-30	+52°59'	15	Type I	"	9 32	9 39	7 min	✓	4	"	"			8	"	"	"	" "	2E14	" 180° 6m drift (SN 150 ?)
87	"	SN 137 NGC 3631	11-18-18	+53°28'	18	" V.	"	11 29	0 59	90 min	✓	4	He 50+50	Ne 15+15			8	"	"	"	" "	1W41	" 180° (SN wild)
88	"	Galaxy SN Loves	11-56-30	+52°59'			"	1 16	2 16	60 min	✓	3	He 35+35				12	30° 30'	"	"	IIa-O	2W19	" 90°
89	"	Anon galaxy	15-04-12	+04°16'			"	3 49	4 19	30 min	✓	3	"	"			"	4	"	"	"	1W16	" 180° (+ Star ?)
2190	Mi	HD 182487	19-22-52	+42°54'	7.0	4O	19-20	15 21	15 35	1,2,3m	-	1	He 60	+60	PF 316	3 min	30	18°	"	680	IIa-o bkd	3E58	2.5 m screen
91	"	M8 Hoogeveen	18-01-40	-24°22'				15 29	16 19	80m	c	1			~ 180°	~ 60"	9	"	"	"	"	1E04	
N 2192	Sc	3C 227 (a)	9 45 52	+7 35	16½		April 2	10 32	13 35	183m		1	He 35+35	Ne 35+15			9	98 4°30'	3"	6.85	IIaD blue (2452)	4W29	Base 270°
2193	"	3C 287 (a)	13 28 59	+25 19	18		April 6	8 11	15 42	451m		2					"	"	"	"	"	3W28	
N 2194	AD	NGC 4365	12 22 20	+ 7 52			April 7	8:10	10. 28	138		2	He Hg		(A) 2min	D 10, 25h	2+12	16+16 45°	1.4	7.05	IIa-O blued	0E36	Base 35: #16. PH1. Δ2
95		NGC 4473	12 28 00	+13 28				10:57	13, 49	178		2	"	"	A							2W42	0, " " 2 "
96		NGC 4636	12 41 00	+ 2 53				14, 07	15:58	111					A							4W37	0. " " 5 "
N 2197	AD	NGC 4179	12 11 00	+ 1 30			" 8	8 14	10:27	133		1-2	"	"	A, dilte		"	"	"	6.95	"	0E21	50. " " 1 "
98		NGC 4486	12 29 00	+12 37				10:57	11: 28	31		2			A							0W22	90. " " 2. Δ1
99		7.3mp NGC 4486	12 28.6	+12 43				11:59	13,07	68		2-3			B, dilte							2W00	90. Out(?) " 5. "
N 2200		NGC 4570	12 35 06	+ 7 27				13:38	16:00	142		2			B							3W48	62. #16 " 1. Δ2
N 2201	AD	NGC 4488	12 29 00	+12 36				7:53	9,00	67		2			A, dilte		"	"	"	"		2E03	90. " " 2 "
02		7.7mp dilte	12 28 46	+12 37				9,12	12:18	198		3-2			A							1W16	90. " " 5 "
03		NGC 4558	13 03 55	- 7 49				12:37	14:37	120		2-1			B, dilte, 20m							2E54	105. " " 1 "
04		NGC 4697	12 46 42	- 5 36				15:11	16:08	58		1			B							4W50	160. " " 2 "
N 2205	ARS	Near 3C 194	8-07-22	+42 34	17.7	A	April 12/13	8:10	10:10	120	✓	3	He	17+17			14	63B 7°45'	1.4	7.00	"	3W41	W #1
06	"	3C 287	13-28-55	+25 21	"	"		11.05	13:05	"	✓	3		"			"	"	"	"	"	1W14	W #1
07	"	3C 275.1	12-42-09	+16 35	12	Gc		13:31	14:11	40	✓	2		"			11	"	"	"	"	3W08	W #3 P.A. 80° (along major axis)
08	"	"	"	"	"	"		14:35	16:15	40m	✓	2		"			11	"	"	"	"	4W12	nucleus closer to east window.
09	"	3C 305	14-48-31	+63 26	15	"		15.36	16:06	30m	✓	2		"			14	"	"	"	"	2W56	nucleus toward So. Side. [Minor axis
10	"	"	"	"	"	"	Apr 15/16	15:13	15:43	30	✓	3		"			"	"	"	"	"	2W45	Seil east - west.
11	"	"	"	"	"	"		15.54	16:05	11m	30	3		"			"	"	"	"	"	3W07	Seil along maj axis. P.A. 20° E side toward
12	"	"	"	"	"	"	Apr 16/17	14:02	14:32	30m	✓	2		"			"	"	"	"	"	1W38	" " minor P.A. N side toward W
13	"	"	"	"	"	"		15.00	15:40	40m	✓	2		"			"	"	"	"	"	2W46	Base = 30° = P.A. 210°. Thin star
																							Base = 115 = PA 295°

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1964	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2214	Amp	*m. NGC 2338+39	8/21/37	+21/29/06	13		10 May	8:04	8:14	10m	X	3	A He	45s2 30x2			10	648 15/50	3"	6.95	IIa-o bkd 2D6	3h21	wrong star
2215	"	"	"	"	"		"	8:35	8:53	15m	X	"	"	"			"	"	"	"	"	4h01	"
2216	"	"	"	"	"		"	9:02	9:24	22m	X	"	"	"			"	"	"	"	"	4h31	"
2217	"	Coma #49	12/16/01	+25/46/34	8.2	F2V	"	9:43	9:45	2m	1m	"	"	"			"	"	"	"	"	0h59	standard
2218	"	*m. 3C 273	12/27/17	+2/15/20	14		"	10:58	11:03	35m	X	3	"	"			"	638 7/45	"	"	"	2h27	3C 273 by mistake
2219	"	*m. NGC 521	13/33/15	+13/55/09	15		"	11:35	12:53	78m	✓	"	"	"			"	"	"	"	"	2h50	
2220	"	*m. VV 250	13/14/51	+62/18/24	15		"	13:48	15:19	91m	✓	"	"	"			"	"	"	"	"	5h39	
N2221	Amp	*m. NGC 2338+39	8/21/35	+21/30/07	14		11 May	7:53	7:58	5m	✓	"	A He	30x2 30x2			11	"	"	"	"	3h09	o.k.
2222	"	NGC 2338+2339	8/21/28	+21/27/24	15	Em	"	8:21	9:53	92m	✓	"		"			"	"	"	"	"	3h04	90° obl, both not 3 em lines
2223	"	*m. VV 267	10/57/55	+17/51/08	12		"	10:11	11:25	14m	✓	"		"			"	"	"	"	"	3h50	
2224	"	*m. NGC 3445	11/52/35	+57/11/32	11		"	10:45	10:48	3m	✓	"		"			"	"	"	"	"	3h59	
2225	"	*m. 3C 273	12/27/15	+2/15/17	14		"	11:07	11:42	35m	✓	"		"			"	"	"	"	"	2h47	
2226	"	Coma #118	12/27/06	+27/58/36	8.8	F6V	"	12:03	12:04	40s	✓	"		"			"	"	"	"	"	3h18	
N 2227	Z	Compact galaxy	12-02-36	+41° 35'	16	Ko	3. VI	8:31	9:31	60m	90m	3	He 30	+30s			12	98 B 30°,01	3"	6.80	IIa-O	2h32	Base o
28	"	NGC 5394	13-56-36	+37° 40'		Pec.	"	9:49	10:49	60m	40m	5	35s	+35s			10	"	"	"	"	2h0.	" o
29	"	Double Comp. Gal.	16-55-24	+34° 06'	16	Ko	"	0:23	1:51	90m	✓	5	28s	+28s			13	"	"	"	"	1h59	Partially occon, Base o
30	"	Compact galaxy	11-22-42	+54° 40'		Em.	4. VI.	8:11	9:11	60m	✓	3	He 28s	+28s			13	"	"	"	"	2h55	Base 290° 330°
31	"	NGC 5395	13-56-36	+37° 40'		G	"	9:19	10:09	40m	✓	4	He 35s	+35s			13	"	"	"	"	1h10	Base o°
32	"	" 5394	13-56-36	+37° 40'		Em.	"	10:32	10:54	22m	✓	4	He 45s	+45s			10	"	"	"	"	2h5	" 270°
33	"	Compact galaxy	15-45-54	+37° 21'		G	"	11:15	11:45	30m	50m	4	He 35s	+35s			11	"	"	"	"	1h11	" 0°
34	"	" "	17-42-30	+38° 05'			"	0:03	0:33	30m	50m	4	"	" "			11	"	"	"	"	0E2	" 90°
35	"	" "	17-44-24	+39° 43'			"	2:00	2:45	45m	60m	4	"	" "			11	"	"	"	"	2h8	" 0°
N2236	PK	T Leo	11 36 36	+3 34	~15	sdBe	June 5/6	8:34	9:06	32m	OK	2	He 30 A 45	+30 +45			9.5	63B 8°00	3"	6.85	IIa-O baked	2h40	Wide first
b	"	"	"	"	"	"	"	9:06	9:35	29m	"	2					11	"	"	"	"	3h10	
c	"	"	"	"	"	"	"	9:36	10:05	29m	"	2					"	"	"	"	"	3h39	
N2237a	"	"	"	"	"	"	"	10:15	10:45	30m	"	4	He 30	+30			4	"	"	"	"	4h19	
b	"	"	"	"	"	"	"	10:46	11:21	35m	"	1-2	A 45	+45			"	"	"	"	"	4h56	Stopped by clutch slippage.
N2238a	"	CL Sco	16 52 42	-30 35	13.9	pec	"	12:10	12:37	27m	"	2	He 30	+30			"	"	"	"	"	0h57	
b	"	"	"	"	"	"	"	12:37	13:09	32m	"	1-2	A 45	+45			"	"	"	"	"	1h26	
c	"	"	"	"	"	"	"	13:09	13:36	25m	"	2					"	"	"	"	"	1h56	
N2239a	"	RT Ser	17 37 57	-11 56	~16.5	"	"	14:14	14:50	41m	"	2-3	A 45	+45			"	"	"	"	"	2h26	
b	"	"	"	"	"	"	"	14:50	15:27	37m	"	"	He 30	+30			"	"	"	"	"	3h01	
N2240a	"	T Leo	11 36 36	+3 34	~15	sdBe	June 6/7	8:05	8:46	41m	OK	1-2	He 30 A 45	+30 +45	300W	#16, 10m	9.5	"	"	"	"	2h23	
b	"	"	"	"	"	"	"	8:46	9:23	37m	"	1					"	"	"	"	"	3h08	
c	"	"	"	"	"	"	"	9:24	10:07	43m	"	0					"	"	"	"	"	3h46	
N2241a	"	V 786 Cyg	20 13 43	+59 38	13.2v.	M	"	11:16	11:48	32m		1	He 30	+30			"	"	"	"	"	3E11	
b	"	"	"	"	"	"	"	11:49	12:17	28m		0-1	A 45	+45			"	"	"	"	"	2E28	
c	"	"	"	"	"	"	"	12:17	12:45	28m		0					"	"	"	"	"	2E00	
N2242	"	Comp. to RU Peg	22 13 16	+12 31	~13	dK	"	13:56	15:00	64m		0	He 30	+30, A 45	+45		"	"	"	"	"	2E13	Fog at end.

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, SEATTLE

NO.	OBS.	OBJECT	R. A. 1950	DECL.	MAG.	SP.	1964 DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2243	JLG	G 139-8	16 59 30	+16 13	11.8	sdF	June	11 56	12 12	21	✓	0	He 45+45		W1	75m	7	64 B	3"	6.85	IIa-O Bld	0w44	Δ1
44	"	LPM661	17 53 12	-16 23	11.5	sdG	9 " /10	12 46	13 27	41	✓	0	2m 20+20		"		7	"	"	"	"	1w00	Δ2
45	"	G142-32	19 43 16	+16 20	14.5	DA	"	14 09	15 26	82	✓	0	He 80	Ne40	"		9	63B	"	"	"	1w10	Δ1
46	JLG	G14-24	12 59 27	-01 49	13.5	dK	June 10/11	11 05	11 55	50	80	2	He45+45 Ne 35+35 A 30+30		W1	30m	9	64 B	"	"	"	4w26	Δ1
47	"	+1°3129A	15 44 12	+00 53	15.0	G	"	12 10	12 17	7	✓	5	"		"		7	"	"	"	"	2w04	Δ2 N 2248 is 200F-Sep 2253
48	"	+1°3129B	15 44 12	+00 53	15.8	DF(?)	"	12 35	13 42	67	80	4	He90 Ne 60		"		9	63 B	"	"	"	3w29	Δ1 ↙ Sky Bright (Hg strong)
49	"	G138-8	16 09 06	+13 30	15.3	DA	"	13 55	15 21	86	✓	2	He 45+45 Ne 30+30		"		9	"	"	"	"	4w42	Δ1 " "
2250	JLG	G14-24	12 59 27	-01 49	13.5	dK	June 11/12	8 15	9 25	70	✓	1	He 45+45 Ne 30+30 A 30+30		W1, W2		7	64 B 17000	3"	6.85	IIa-O Bld	2w20	Δ1
51	"	Tom 788	15 12 18	+24 21	13	sdB	"	9 42	10 14	32	✓	3	"		"	30m	"	"	"	"	"	0w36	Δ1
52	"	LPM661	17 53 12	-16 23	11.5	sdG	"	10 58	11 33	35	✓	2	"		"	bar obl	"	"	"	"	"	1E46	Δ2
53	"	+1°3129B	15 44 12	+00 53	15.0	DA	"	11 33	12 43	70	✓	4	He45+45 Ne 30+30				9	63 B 8000	"	"	"	2w32	Δ1
54	"	G141-54	18 57 29	+11 54	15.4	DA	"	13 08	14 28	85	✓	4	"				"	"	"	"	"	1w55	Δ1 Hartstein 17m, 16° north
55	"	G127-34	22 25 56	+27 51	12.1	dG	"	14 42	14 47	5	3	4	"				"	"	"	"	"	2E03	Δ1
56	"	G126-63	22 09 12	+17 48	13.1	dG	"	14 57	15 14	15	10	3	"				"	"	"	"	"	3E23	Δ1
57	Z	SN NGC4303	12-19-18	+4° 45'	15.5		July 4/5	8 31	9 03	30m	✓	1-2	He 40+40 Ne 13-13				10	98 B 4030'	3"	6.80	103a-F	3w58	supernova Rosino Base 0°
58	"	Compact Galaxy	17-01-06	+33° 08'	16.0	Apec	"	9 29	10 29	60m	✓	2	He 30+30				12	" 3030'	"	"	IIa-O bled	0w33	Base 270°
59	"	" "	17-27-06	+50° 15'	16.0	O	"	11 02	11 32	30m	15	3	He 40+40				10	"	"	"	" "	1w10	Base 180°
2260	"	2 " galaxies	14-49-12	+53° 10'	16.5	G	"	1 23	2 35	52m	90	4	" 45+45				10	"	"	"	" "	1w51	Base 110° some Moon,
61	"	SN NGC4303	12-19-18	+4° 45'	15.5		July 5/6	8 20	8 34	14m	✓	1-3	" 40+40				"	"	"	"	" "	3w23	" 0°
62	"	Expl. galaxy	14-49-18	+35° 45'	15.0	Pec.	"	8 52	9 34	40m	60m	3-4	" 35+35				12	"	"	"	" "	1w55	" 30°
63	"	Compact small " (1)	15-34-18 NE	+43° 40'		K	"	10 03	10 38	35m	✓	4	" 30+30				12	"	"	"	" "	2w12	" 90° The smaller of 2.
64	"	" large (2)	15-34-18 SW	+43° 40'		K	"	10 53	11 13	20m	✓	4	" "				"	"	"	"	" "	2w48	" 90° " larger of 2 IC4562
65	"	" galaxy	18-31-36	+54° 29'		A+Em	"	0 50	1 50	60m	✓	4	" 35+35				"	"	"	"	" "	2w28	" 90°
66	"	Expl. galaxy	14-49-18	+35° 44'		Pec.	July 6/7	8:24	9:57	90min	90min	2	" 35+35		Ne 8+8		13	40 30'	"	"	103a-F	1w20	" [redacted] 313°
67	"	Compact " (2)	17-27-06	+50° 15'	16.0	O	"	10:41	11:01	40min	80m.	3	" 50+50		Ne 15+15		9	"	"	"	" "	0w48	" 180° widened.
68	"	Anon Galaxy	15-59-18	+18° 19'			"	11:21	0:01	40 "	60 "	3	" 35+35				12	3030'	"	"	IIa-O	3w15	" 270° (Heavy core, Halo)
69	"	" "	23-39-22	-3° 45'			"	1:16	3:06	70 "	100 "	2	" 25+25				14	"	"	"	"	1w20	" 180° Member of group.
2270	"	GC 30866	22-01-57	+20° 1' 26"	8.1	Ko	"	3:10	3:13	3 "	—	2	" 42+42		Ne 12+12		10	4230'	"	"	103a-F	—	" 180° (Text), widened
71	"	Superova Lovas	11-56-30	+52° 59'	16.5	(I)	July 7/8	8:51	9:51	60min	3R	2	" 40+40		" 13+13		10	"	"	"	" "	5w12	" 90° (Emulsion poor)
72	"	Pair Galaxies	15-14-06	+43° 21'			"	10:12	11:42	90min	4R	2-3	" 35+35		" 10+10		12	"	"	"	" "	3w44	" 310° " "
73	"	galaxy No. 1	23-39-22	-3° 45' 42"	15.0	Em	"	1:37	2:47	70 "	100min	2-3	He 25+25				14	3030'	"	"	IIa-O	1E34	member of group. Base 180°
74	"	Pair Galaxies	15-14-06	+43° 21'			July 8/9	9:23	11:23	120m	✓	2†	He 30+30				14	"	"	"	"	3w30	Base 130°
75	"	Compact galaxy	17-16-36	+48° 31'			"	11:38	0:18	40m	✓	2	" "				"	"	"	"	"	2w23	" 270°
76	"	No. 6 of group "	23-40-56	-3° 48.8'			"	0:40	1:20	40m	✓	2-3	" "				"	"	"	"	"	3w00	" "
77	"	" 4 " "	23-39-38	-3° 44.1'			"	1:31	2:21	50m	✓	3-4	" "				"	"	A	"	"	1E57	" "
2278	JLG	G 152-B4B	15 55 22	-09 00	15.0	DA	July 14/15	8:52	9:52	60	✓	2	He45+45 Ne 20+20		W1	70m	8	63 B 8000	3"	6.80	IIa-O Bld	2w02	Δ1 Moon, Cldy Sky bright
79	"	G 154 B5A	17 43 04	-13 17	13.3	dM	"	10 29	10 47	18	✓	1	A 20+20		W1		"	"	"	"	"	0w48	Δ1
2280	"	G154 B5B	"	"	15.1	DA	"	10 55	12 15	80	✓	1	"		W1		"	"	"	"	"	2w06	Δ1 Ft companion 3" 150°
81	"	G140-26A	17 56 01	+11 23	~15	dK	"	12 32	13 42	70	✓	2	"		W2	70m	"	"	"	"	"	3w29	Δ1 Unresolved double?
82	"	G156-31	22 35 46	-15 35	12.2	dM82	"	14:16	15:26	70	✓	2	"		W2		"	5F30	"	"	"	0w36	Δ2

CHARLES R. MADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

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N2283	JLG	Tom 7 88	15 12 18	+24 21	13.0	Bp	Jul 15/16	8 15	8 53	38	✓	1	He 60+60 A 40+40		W1	75m	8	G4 B 17°00	3"	6.90	IIa-0 Bkd	1w29	Moon Very Bright
84	"	Ferge 99	14 37 12	+19 34	10.0	A	"	9 00	9 16	10	X	1	"		"		8	"	"	"	"	2w22	"
85	"	"	"	"	10.0	A	"	9 18	9 22	4	2	1	"		"		8	"	"	"	"	2w32	"
86	"	Ferge 100	14 37 24	+19 21	11.7	A	"	9 32	9 48	16	✓	1	"		"		8	"	"	"	"	2w56	"
87	"	Abell 78	21 33 24	+31 28	12.8	Of	"	10 11	11 12	61	90	1	11+Ne 60	60	"		8c	16°00	"	"	"	2E33	V
88	"	G155-15	18 21 16	-13 10	16	DA wk	"	11 40	12 11	31	✓	4	He 20+20 Ne 15+15		"		12	G3 B 8°15	14	7.10	"	1w38	Moon set at 11h30m
89	"	G155-19	18 27 53	-10 39	16	DA	"	12 26	13 02	36	✓	3	A 10+10		W2	75m	12	"	"	"	"	2w22	
2290	"	G28-27	22 54 55	+07 40	16.5?	DCp	"	13 29	15 33	124	✓	3-4	"		"		12	"	"	"	"	0w28	No Moon. Sfatter. Very Bac.
91	"	SN Gates	22 26 12	+30 04	±14	SN	"	15 43	15 49	6	✓	3	"		"		12	"	"	"	"	1w12	
92	"	G28-27	22 54 55	+07 40	16.5	DCp	Jul 16/17	13 53	15 55	1002	✓	3-4	He 30 Argon 20		W2	75m	12	"	"	"	"		Dawn 15h24m - 8 min. Bolusides Alc
N2293	RPK	Comp. RUPeg	22 12 16	+12 31	13.5	dK	Aug 11/12	8 16	9 35	79m	OK	2-3	He 65+65 A 60+60				9	G4B 15°20'	3"	6.90	IIa-0 bckd	3E00	Clouds throughout.
94	"	HR 6806	18 08 28	+38 27	7.2	K2V	"	7 12	7 35	—	OK	2-3	Ne 90 A 120				"	"	"	"	"	0E54	3 exp. graded.
95	"	σ Dra	19 32 26	+69 36	5.5	K0V	"	8 03	8 07	—	OK	"	—				"	"	"	"	"	1E57	3 mag screen, 3 exp.
96	"	β Agl	19 53 33	+6 19	4	G8III	"	8 25	8 27	—	OK	"	—				"	"	"	"	"	1E48	4 mag screen, 3 exp.
97a	"	HV 8002	00 09 36	-35 15	15	dB2	"	10:30	11:05	35m	OK	1-2	He 30+30				4	G3B 8°00'	"	"	"	3E25	wide first.
b	"	"	"	"	"	"	"	11:07	11:43	36	OK	2	A 45+45				"	"	"	"	"	2E46	
c	"	"	"	"	"	"	"	11:43	12:19	36	OK	2-3					"	"	"	"	"	2E13	
98a	"	"	"	"	"	"	"	12:30	13:07	37	OK	2-3					"	"	"	"	"	1E24	Orientation as 2297
b	"	"	"	"	"	"	"	13:07	13:42	35	OK	2					"	"	"	"	"	0E48	
c	"	"	"	"	"	"	"	13:42	14:20	38	OK	2					"	"	"	"	"	0E10	
99a	"	"	"	"	"	"	"	14:29	14:57	28m	OK	2					"	"	"	"	"	0w28	Orientation as 2297
b	"	"	"	"	"	"	"	14:58	15:27	29m	OK	2					"	"	"	"	"	0w57	
c	"	"	"	"	"	"	"	15:27	15:53	26m	OK	2					"	"	"	"	"	1w23	
2300	MW	M31	0:40:45	+41°05'			Aug 13/14	12:41	15:21	160'	"	3					14	G4B 15°10'	1"4	7.10	103a-E	0w23	12' n.p. on major axis
01	"	"	"	"				15:36	16:06	30'	"	"					"	"	"	"	"	1w10	3' n.p. " " "
02	"	"	"	"			Aug 16/17	13:53	15:40	127'	✓	3-4					"	"	"	"	"	0w55	8' n.p. " " "
03	"	"	"	"				16:06	16:11	5'	✓	"					"	"	"	"	"	1w16	Nucleus
N2304	JLG	G140-26A	17 56 00	+11 23	14.7	dM	Sept 11/12	7:37	8:27	50	✓	2	He 45+45 Ne 20+20		W1	75m	9	G3B 8°30	3"	6.96	II a0 Bkd	2w17	Diffuser paper (Bta brown) Δ1 Some moon
05	"	AC+70°8247	19 00 41	+70 36	13.2	Dp	"	8 49	9 33	44	✓	3	"				"	"	"	"	"	2w10	Δ2 No moon
06	"	"	"	"	"	"	"	9 53	10 35	42	✓	3	He 30+30 Ne 20+20		W2	45	4	9B 4°40	"	"	L03a F	3w12	Δ1
07	"	CTA 102 (3)	22 30 08	+11 28	12.5	?	"	11 23	13 55	152	✓	3-4	"		W1		"	"	"	"	II a0 Bkd	3w01	1/2 Δ1
08	"	G132-12	0 36 23	+31 15	16.2	DA	"	18 44	6 05	81	✓	5	"		W1		"	G4B 3°30	"	"	"	3w07	Δ1
N2309	JLG	3C 401 (3)	19 39 38	+60 34	14	G	Sept 12/13	8 03	9 00	(57)	✓	1	He 30+30 Ne 20+20		W1	75m	9	9B 3°30	3"	6.96	II a0 Bkd	1w01	Clds Moon Δ1 ABC 20m 10m widened
10	"	G156-57	22 50 36	+14 31	12.5	dM	"	9 22	10 17	+10m +20m	10m	0	"		None		"	"	"	"	103a F	0E52	Clds Moon Δ2
11	"	G 28-34	23 03 43	+02 23	14.0	dK	"	10 43	11 43	60	✓	2	He 45+45 Ne 30+30		W1		8	G3B 8°20	"	"	II a0 Bkd	0w22	Clds Δ1
12	"	G 28-43	23 07 00	+00 27	11.2	dG	"	11 53	12 01	8	✓	2	✓		W1		11	"	"	"	"	0w35	Δ2
13	"	-0°4470	23 07 06	+00 30	10.7	sd8	"	12 10	12 17	7	✓	3	11		W1		11	"	"	"	"	0w59	(150m Δ2
14	"	G1-7=4011-71	0 33 06	+01 37	15.3	DA	"	12 51	14 25	44	✓	3	"		W1		11	"	"	"	"	1w34	200' Δ1
15	"	HG 7-21	3 47 12	+09 15	14.1	dG	"	15 20	16 32	72	✓	1	He 90+90 Ne 40+40 A 20+20		W1		6	G4 B 16°00	"	"	"	0w27	" Δ1 Some down

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1964	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2316	JLG	G155-34 (1950)	18 40 12	-11 12	15	Ap	Sept. 13/14	7^50	8^33	43	25	2	He 30 + 30 Ne 20 + 20		W1	75^m	9	98 B	3''	6.96	IIa O B48	1^W37	Bright moon Δ1
17	"	AC+70°8247	19 00 31	+70 37	13	Dp	"	8^50	10^30	100	✓	2	He 45 + 45 Ne 20 + 20		W2	45^m	9	3°30	"	"	103a F	3^W16	" " Δ2
18	"	G 156-64	22 53 12	-08 06	16.3	DA+dM	"	10^56	12^56	120	180	1	He 45 + 45 Ne 20 + 20		W1		9	4°40'	"	"	IIa O B48	1^W48	No Moon Δ1
19	"	G95-59	3 46 45	+43 18	13.4	dM	"	13^20	16^12	172	340	0	He 45 + 45 Ne 10 + 10		W2		8	"	"	"	103a F	0^W10	" " Δ2
N2320	SC	CTA 102(a)	22 30 52	+11 33	17½		Oct 5	6^45	13^03	198		4-3	He 15+15 Ne 15+15				9	48 B 4°30'	3"	6.85	IIaD hbd	3^W45	Base 290° ; interrupted by clouds
21	"	3C 9 (a)	0 18 33	+15 29	18		" 6	7^03	11^08	245		4-3	"	"			"	"	"	"	"	0^W04	" "
22	"	3C 93 (a)	3 41 39	+4 50	18		" "	12^22	16^22	240		2-3	"	"			"	"	"	"	"	2^W02	" "
23	"	3C 9 (a)	0 18 33	+15 29	18		" 7	6^55	11^55	300		2-3	"	"			"	"	"	"	IIaD hbd	0^W57	" "
24	"	3C 109 (a)	4 11 43	+11 07	18		" "	12^32	16^22	230		2-3	"	"			"	"	"	"	IIaD	1^W31	" "
25	"	3C 9 (a)	0 18 33	+15 29	18		" 8	6^49	15^49	480		2-3	"	"			"	"	"	"	IIaD hbd	4^W56	" "
26	Nw	~~HD 196610~~ HD 234877 HD 173740	20 36 16 18 33 09 18 42 30	+18° 08' +51° 42' +54° 33'	8.3 9.7	dM1 dM5	Oct 9	6^49	7^04	2^m,6,12		2	Ne 3^m				9	64 B 14°	"	"	IIIa-N (NH3)	1^W59	Δ2
27	"							7^09	7^21	5, 8												2^W15	Δ1, c
28	"	HD 196610	20 36 16	+18° 08'	6.3	gM6	"	8^27	8^39	2,4,5^m		"										1^W31	Δ2 2.5 mag sec
29		HD 212470	22 22 18	+31° 04'	7.5	gM45	"	8^47	9^03	4,9		"										0^W08	"
30	"	HD 223835	23 51 11	+41° 09'	7.2	gM2	"	9^15	9^38	4,7,12		"										0^E45	
31	"	IR Taurus source	3 51 36	+11° 17'	15v	?	"	18^10	14^18	188		"										0^E05	
32	"	HD 196610	20 36 16	+18° 08'	6.3	gM6	Oct 10	6^55	7^25	6,11,18		"	"	"	"	"						0^W20	
33	"	HD 200563	21 01 54	+23° 51	7.9	gM5		8^12	8^31	3,6,10		"	"	"	"	"						1^W01	
34	"	IR Taurus wide	3 51 36	+11° 17'	15v	?	"	10^42	12^47	17^m,31^m,68^m		"	"	"	"	"						1^E32	
35	"	"	"	"	"	"	Oct 11	11^51	13^28	20^m,67^m		"										0^E43	
N2336	ARP	star NGC 151	00/31/96	-09/58	13	G	14/15 Oct	10:28	10:48	20^m	✓	1	He 20 x 2 A 30 x 2				10	63 B 7 45	3"	6.80	IIa-o hbd	0^W04	stopped by clouds.
37	"	NGC 7752-3	23/45/00	+29/12	15	em	15/16	7:48	8:48	60^m	✓	5	"	"			"	"	"	"	"	1^E05	1/4 moon gusty stars
38	"	~~NGC 7550~~ star	23/13/09	+18/46	13	EO	"	9:17	9:42	25^m	50	5	"				"	"	"	"	"	0^W21	moon stronger interference as haze must have set in
39	"	* 6 m. NGC 1134	2/52/01	+15/52	13-15	G	"	15:39	16:29	50^m	✓	4	"				"	"	"	"	"	3^W20	through clouds.
40	"	"	"	"	12	G	"	16:37	16:54	17^m	✓	4	"				"	"	"	"	"	3^W50	
N2341	ARP	VV 22 / star	2/48	+12/53	17 Hart	?	2/3 Nov	14:10	15:20	70^m	150^m	0	He 20 x 2 A 30 x 2				10	63 B 7 45	3"	6.75	IIa-o hbd	3^W36	2nd line across ribbon 3 base 90°
42	"	* m. NGC 2429	7/41	+52/27	14	G	"	15:42	16:38	47^m	✓	0	"				"	"	"	"	"	0^E09	
43	"	* m. NGC 7679	23/27	+3/18	13	G	3/4 Nov.	6:55	7:17	22^m	✓	2	"				"	"	"	"	"	1^E03	
44	"	VV 208	23/54	+20/11	15	?	"	7:43	8:28	45^m	100^m	2	"				"	"	"	"	"	0^E17	slit through slow + bright met
45	"	NGC 7752+3	23/45	+29/12	?	em	"	9:08	11:08	120^m	✓	2	"				"	"	"	"	"	2^W30	base 116°.3 L elongation taking sp. area
46	"	VV 301	1/30/02	+31/54/30	gal	abs.	"	11:55	14:25	150^m	✓	3	"				"	"	"	"	"	4^W02	base 87°.5 along sp. area + Eyd
47	"	NGC 2429	7/41	+52/27	gal	abs.	"	14:36	16:06	70^m	✓	2	"				"	"	"	"	"	0^E27	base 324°.3
48	"	* m. Wortmann 16	9/25/51	+12/26/50	12	G	"	16:42	16:58	17^m	✓	2	"				"	"	"	"	"	1^E19	
49	"	VV 221	2/49/21	+12/44	17 Hart	?	4/5 Nov	11:25	13:48	123^m	180^m	4	"				"	"	"	"	"	1^W55	through clds + stopped by clds. base 101°.5
N2350	SC	CTA 102 (a)	22 30 52	+11 33	17½		Nov 6	6:18	11:28	310^m		3	He 15+15 Ne 15+15				9	48 B 4°30'	3"	6.85	IIaD hbd	4^W16	Base 290°
51	"	3C 208 (a)	8 51 14	+14 00	17½		"	12:59	16:47	288^m		4	"	"			9	"	3"	"	"	0^E44	" "
52	"	CTA 102 (a)	22 30 52	+11 33	17½		Nov 7	6:26	9:07	161^m		2	He + Ne 15				9	"	3"	"	"	2^W0	" " , stopped by clouds
53	"	3C 9 (a)	0 18 33	+15 29	18		Nov 8	6:33	7:10	37^m		1-2	He + Ne 5				15	"	1.4	7.1	"	1^E49	" " , stopped by low clouds

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

NO.	OBS.	OBJECT	R. A. (1950)	DECL.	MAG.	SP.	DATE 1964	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
→ Note:— The 1.4" solid block camera was modified; diamond field flattener for all plates N ≥2354																							
N2354	JLG	G158-78	0 23 30	−10 54	16.2	DAs	Dec 8/9	$8^{h}13$	$9^{h}03$	50	✓	3	He 20+20 Ne 10+10		W1 75		12	63B 7045	14	6.00	IIaO Bkd	$2^{w}04$	Bright sky
55	"	G158-77	0 23 28	−10 53	14.6	dM	"	$9^{h}09$	$9^{h}29$	20	✓	1			W1		"	"	"	"	"	$2^{w}30$	"
56	"	L587-77 B	3 26 48	−27 34	15.6	dM	"	$9^{h}52$	$10^{h}42$	50	40	1			W1		4	"	"	"	"	$0^{w}40$	"
57	"	L587-77A	"	"	13.9	DAs	"	$11^{h}00$	$11^{h}46$	46	✓	0	He 45+45 Ne 20+20 A 20+20		W1		8	"	3	6.90	"	$1^{w}44$	Clds!! Unguided
58	"	G165B2B	6 25 01	+10 02	16.9(??)	"	"	$13^{h}02$	$15^{h}14$	133	NG	1			W2		12	"	14	6.0	"	$2^{w}14$	Clds!! NG Wrong Star tracked
59	"	G165B2A	4	"	14.7	dM	"	$15^{h}27$	$16^{h}25$	58	✓	1			W2		8	"	3"	6.9	"	$3^{w}26$	Clds
2360	"	LP90-70A	8 55 45	+60 29	15.5	DA	"	$16^{h}50$	$17^{h}25$	35	50	1			W2		12	"	14	6.0	"	$1^{w}54$	Preceding Star Clds.
N2361	JLG	L587-77A	3 26 48	−27 34	14	DAs	Dec 9/10	$9^{h}45$	$10^{h}27$	42	✓	1-2	He 45+45 Ne 20+20 A 20+20		W1		8	80 30	3"	6.9	IIaO Bkd	$0^{w}29$	
62	"	G82-22	4 27 30	−03 10	15.4	DF?	"	$10^{h}48$	$12^{h}18$	90	✓	2-3	He, Ne, A		W1		8	"	"	"	"	$1^{w}19$	
63	"	G105-B2B	6 25 01	+10 02	16.9	DF?	"	$12^{h}34$	$14^{h}24$	106	80	2	He, Ne		W2		12	7045	1.4	6.0	"	$1^{w}24$	
64	"	LP90-70A	8 55 45	+60 29	15.5	DCO	"	$14^{h}36$	$15^{h}51$	75	120	3	"	20+20 10+10	W2		12	"	"	"	"	$0^{w}24$	Δ2 Very Peculiar
65	"	LP90-71B	(1	"	16.2	dM	"	$15^{h}59$	$17^{h}02$	63	✓	3	"		W2		12	"	"	"	"	$1^{w}34$	
N2366	JLG	G74-7	2 08 13	+39 42	14.3	DAs	Dec 10/11	$10^{h}12$	$10^{h}42$	30	40	2	He 45+45 Ne 20+20 A 20+20		W2		7	80 15	3"	6.9	IIaO Bkd.	$2^{w}05$	
67	"	G7-38	3 23 40	+19 05	16.1	sdG	"	$11^{h}04$	$11^{h}44$	40	✓	2	He 20+20 Ne 10+10		W3		12		1.4	5.95	"	$0^{w}52$	
68	"	G83-10	4 23 07	+12 05	15.7	DC	"	$11^{h}35$	$12^{h}35$	40	✓	1	"		W3		"		"	"	"	$1^{w}44$	
69	"	G89-10	7 15 22	+12 35	16.3	DAs	"	$12^{h}55$	$14^{h}20$	85	✓	1	"		W3		"		"	"	"	$0^{w}37$	
2370	"	G100-54	6 00 16	+19 22	14.4	dMp	"	$14^{h}42$	$15^{h}30$	48	✓	1	He, Ne, A		W2		7		3"	6.9	"	$3^{w}49$	
71	"	G115-58	9 07 27	+46 35	13.3	sdF	"	$15^{h}49$	$16^{h}07$	18	10	1	"		W		"		"	"	"	$0^{w}32$	
72	"	G116-57	9 47 00	+41 01	13.0	sdG	"	$16^{h}21$	$16^{h}36$	15	10	1	"		W2		"		"	"	"	$0^{w}22$	
N2373	JLG	HII 380	3-42-27	+25 01	14.2	dK	Dec 29/30	$6^{h}16$	$9^{h}25$	149m	X2	0-1	He 45+45 A 60+60				9	64B 15 20	3"	6.95	IIa-o bkd	$0^{w}32$	
2374a	"	TZ Per	2-11-12	+58 13	15.2	sdBe	Dec 30/31	$8^{h}25$	$9^{h}11$	46m	OK	1-2	He 30+30				4	64B 8 00	4	6.85	"	$1^{w}51$	wide hist
b	"	"	"	"	"	"	"		$9^{h}11$	$9^{h}49$	38m	4	"	A45+45			"	"	"	"	"	$2^{w}29$	
c	"	"	"	"	"	"	"		$9^{h}49$	$10^{h}28$	39m	"	"				"	"	"	"	"	$3^{w}09$	
2375a	"	"	"	"	14.7	"	1965 Jan 1/2	$6^{h}38$	$7^{h}36$	58m	"	0	He 30+30				11	"	"	4	4	$0^{w}21$	ornent. as 2374
b	"	"	"	"	"	"	"	$7^{h}37$	$8^{h}19$	42m	"	0	A45+45				"	"	"	"	"	$1^{w}03$	
c	"	"	"	"	"	"	"	$8^{h}20$	$9^{h}05$	45m	"	0-1					"	"	"	"	"	$1^{w}52$	
2376a	"	SS Aur	6 10 38	+47 45	14.8	sdBe	"	$10^{h}04$	$10^{h}51$	47m	"	1-2	He 30+30				"	"	"	"	"	$0^{E}41$	ornent as 2374
b	"	"	"	"	"	"	"	$10^{h}52$	$11^{h}32$	40m	"	"	A45+45				"	"	"	"	"	$0^{w}21$	
c	"	"	"	"	"	"	"	$11^{h}33$	$12^{h}17$	44m	"	2					"	"	"	"	"	$1^{v}07$	
2377a	"	"	"	"	"	"	"	$12^{h}36$	$13^{h}10$	40m	"	"	He 30+30				"	"	"	"	"	$1^{w}59$	as 2374
b	"	"	"	"	"	"	"	$13^{h}11$	$13^{h}49$	38m	"	"	A45+45				"	"	"	"	"	$2^{w}39$	
c	"	"	"	"	"	"	"	$13^{h}49$	$14^{h}29$	40m	"	"					"	"	"	"	"	$3^{w}17$	
2378a	"	"	"	"	"	"	"	$14^{h}36$	$15^{h}19$	41m	"	2	He 30+30				"	"	"	"	"	$4^{w}07$	as 2374
b	"	"	"	"	"	"	"	$15^{h}24$	$16^{h}00$	40m	"	"	A45+45				"	"	"	"	"	$4^{w}49$	
2379a	"	X Leo	9-49-05	+12 03	~14.5	"	"	$16^{h}26$	$16^{h}57$	31m	"	2-3	He 30+30				"	"	"	"	"	$2^{w}07$	as 2374
b	"	"	"	"	"	"	"	$16^{h}57$	$17^{h}28$	31m	"	"	A45+45				"	"	"	"	"	$2^{w}38$	
2380a	"	HII 740	3-43-32	+24 57	14.3	dK	Jan 2/3	$6^{h}42$	$8^{h}40$	118m	OK	2-3	He 45+45 A 60+60				9	64B 15 20	"	"	"	0 00	
b	"	HII 81	3-41-12	+23 45	14.3	dG	"	$8^{h}53$	$10^{h}50$	117m	"	3-4	"				"	"	"	"	"	$2^{w}08$	center

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, ORLANDO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1965	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2381	AJD	NGC 1964	5h31m.8 (1950)	-21°58'	11.4		Jan 6/7	11:19	11.56	37		2	Ne	2-2	A 200w	D10 20"	2+12	161B 16°15'	1.4	6.55	IIa-D bkd	1W43	#16. P.A.=270°.
N2382	526	G 2-40	1 26 46	+10 08	15.2	DM	Jan 25/6	7 06	7 48	42	✓	1	He 40 Ne 40		W1 75		13	64B 16°20	1.4	6.00	IIa O Bkd	2W55	λ Calib Diffuser broke. Replaced diffuser
83	"	6 7-17	3 58 42	+18°36	17.5	DM	"	8 07	11 44	217	✓	1	He 60	We 40	W1		13	"	"	7.00	"	4W18	
84	"	G 114-B8A	8 58 17	-04°10	10.9	sdG	"	12 22	12 42	20	15	1	He 90 Ne 80		W1		9	"	34	6.00	"	0W16	
85	"	G 114-B8B	"	"	15.4	dK	"	12 34	14 08	74	✓	1	He 60 Ne 40		W1		13	"	1.4	6.00	"	1W43	
N2386	JLG	Pleiades Ref. #52	3 42 17	+24 44	15.6	dMe	Jan 26/27	7 01	8 02	61	✓	0-1	He 30+30		W1 75"		14	63B 8°15'	1.4	6.00	IIaO Baked	0W59	
87	"	" 70	3 44 39	+24 29	16.7	dK	"	8 18	9 52	94	45	1-2	"		W1		14	"	"	"	"	2W15	
88	"	" 45	3 46 38 (1950)	+23 14	14.7	dK	"	10 00	10 37	27	20	1	"		W1		14	"	"	"	"	3W23	
89	"	G 108-42	6 54 46	+02 45	15.9	DC	"	10 57	11 47	50	40	1-0	"		W1		14	"	"	"	"	1W38	
2390	"	G 47-18	8 56 11	+33 09	15.1	DCp	"	12 01	12 59	43	30	1-0	"		W2	30	14	"	"	"	"	0W25	
91	"	AD 5762 B	10 00 54	+38 16	14.3	dG	"	13 57	15 02	71	✓	1-2	He 60+60 Ne 40+40		W2		8	"	34	7.05	"	1W34	
92	JLG	G 47-18	8 56 11	+33 09	15.1	DCp	Jan 27/28	13 00	14 42	102	✓	2	He 60+60 Ne 40+40		W2	30"	8	63B 8°15'	3"	7.05	IIaO Bkd	2W38	Brute sky Clouds
93	"	NGC 5394	13 57 04	+37 37	15.	F	"	15 10	16 43	93	✓	1	"		"		"	"	"	"	"	0E31	Galaxy Base 90°; widened. Nucleus ↑
94	JLG	Pleiades Ref. #59 (1964)	3 43 21	+24 12	dK	dK	Jan 28/29	7 02	7 32	30	20	1-2	He 30+30 Ne 20+20		W2	30"	14	"	1.4	6.00	IIaO Bkd	0W	
95	"	" Ref. #65	3 44 00 (1950)	+24 34	16.7	dMe	"	7 42	9 17	95	✓	2	"		W2		14	"	"	"	"	2W29	
96	"	G 99-37	5 48 46	-00 11	15.0	Dp	"	9 34	9 55	21	✓	2	"		W2		14	"	"	"	"	0W51	
97	"	G 47-18	8 56 11	+33 09	15.1	DCp	"	10 24	13 51	202	✓	3	He 60+60 Ne 20+20		W1	45	9	98B 40+40	3"	7.05	103aF	1W41	
N2398	"	NGC 5394	13 57 04	+37 37	15.	F	"	14 19	16 45	151	240	2	He 90+90 Ne 60+60		W2		9	64B 14°20'	"	"	IIaO Bkd	0E30	Lunar light Base 90°, widened. Nucleus
2399	Z	Compact (or Star)	2-38-42	+4° 00'	14	K	29. I.	7:27	7:57	30m	10m	3	He 55+55				9	98B 36°30'	3"	6.95	IIa-O Bkd	2W07	Base 270° widened
2400	"	compact galaxy	5-04-42	-00°47'	15	G	"	8:36	9:36	60m	✓	2-3	" 45+45				14	"	"	"	"	1W17	" 270°
2401	"	compact (or Star)	7-38-48	+45°33'	15.3	G	"	10:08	11:00	52m	✓	2-3	" 60+60				9	"	"	"	"	0 0	" 180°
02	"	NGC 3938	11-50-06	+44°24'		SNI	"	0:55	1:56	61m	✓	3	" 80+80				10	"	"	"	"	1E05	" 270° Supernova Wild II,
03	"	IC 4356	13-56-36	+37°40'		G	"	2:31	4:00	90m	✓	4	" 55+55				13	"	"	"	"	0E03	" 270°
04	"	NGC 1614	4-31-36	-8° 41'		A(bol) A(cm)	31. I.	6:51	9:23	150m	✓	1-2	" 50+50				9	63B 8°15'	"	"	"	1W29	" 180°
05	"	Compact galaxy	8-24-18	+55°52'		A(cm)	"	9:45	12:00	135m	✓	2-3	" "				10	"	"	"	"	0W32	" "
06	"	" "	9-55-54	+51°45'		G	"	0:20	2:35	135m	✓	2	" "				10	"	"	"	"	1W36	" "
N2407	ARP	Wilson #17	7/34/43	17/57/10	12	Eqal NEX,* E+S	1 Feb 65	8:17	9:00	60m	✓	3	He 20/2 Ne 30/2				10	98B 38°30'	3"	6.95	IIa-O Bkd.	1E34	base 270°
2408	"	VV 248	6/48/54	+86/35/20	14	E+S	2 Feb	7:20	8:35	75m	✓	3	"				"	"	"	"	"	"	base 144.2 E and SE emission 115° within 28' of nucl.
2409	"	Wilson #17	7/34/43	17/57/10	12	after rEgal	"	9:03	10:03	60m	✓	4	"				"	"	"	"	"	"	
N2410	Sc	1252+11	12 52 54	+11 52	16.6		Feb 7	11 33	12 53	80m		1-2 (3")	He + Ne 5 + 5				15	98B 4°30'	1.4	6.1	IIaD thd (Ks Is)	2E29	Base 270°
11	"	3C 298 (d)	14 17 24	+06 38	16.8		"	13 20	15 20	120m		1-2 (3")	"				"	"	"	"	"	1E31	" "
12	"	3C 345 (b)	16 41 48	+39 52	16.3		"	15 43	17 13	90m		1-2 (2½")	"				"	"	"	"	"	2E02	" " , 2 exps 1H+½H.
13	"	3C 245	10 40 53	+12 15	17		Feb 23	7 23	4 08	405m		1-2 (3")	He 41				17	98B 7°30'	"	6.3	IIaN exp, fl3S	1W56	" "
14	"	3C 279	12 54 23	-05 36			"	14 45	17 00	135m		2 (2")	He + Ne 15 + 15				9	4°30'	3"	685	IIaD thd	2W36	" "
15	"	3C 273	12 27 20	+02 15			Feb 24	13 13	15 23	10m 30m 90m		2 (2")	He 41				17	7°30'	1.4	6.3	IIaN exp fl3S	1W24	" "
16	"	3C 380	18 28 37	+48 43			"	15 49	18 24	35m		2 (2")	He + Ne 15				9	4°30'	3"	685	IIaD thd	3E31	" 90°, stopped by clouds.
17	"	3C 254 (d)	11 02 43	+40 49	18		Feb 25	12 12	15 12	180m		3 (1")	He + Ne 15				"	"	"	"	"	2W36	" "
18	"	3C 298 (d)	14 17 24	+06 38			"	15 35	17 00	85m		3 (1")	"				"	"	"	"	"	1W20	" 270°
19	"	3C 254 (d)	11 12 43	+40 49	18		Feb 26	7 46	14 26	400m		3-1 (1-3")	"				"	"	"	103aF exp		1W53	" 90°

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1965	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2420	Sc	3C 287	13 28 59	+25 20			Feb 26	14 43	16 46	123m		2-3 (1.5)	He + Ne	15 + 15			9	48 B 4°30'	3"	185	IIa-D thick	2h02	Base 270°.
21	"	3C 254	11 12 43	+40 49			Feb 28	7 08	15 01	480m		2-3 (1.5)	"	"			"	"	"	"	IIa-F (GG13) H2.5	2h42	" 90°.
22	"	3C 245	10 40 53	+72 15			"	15 21	16 51	90m		2-3 (1.5)	"	"			"	"	"	"	IIa-D thick	5h50	" 270°.
23	Z	Compact galaxy	5 04 42	9°24'			1 III.	7:07	9:37	150m	V	0-1	He 35 + Ne 10	+35 +10			13	"	"	"	IIa-D	3h24	" 270°
24	"	Supernova 159	11 50 06	+44°24'			"	10:07	11:07	60m	V	1-	"	"			"	"	"	"	103a-F	1E49	" 270° (SN in NGC 3938)
25	"	Compact galaxy	12 07	+17°17'			"	11:19	0:09	40m	V	1+	He 30	+30			"	3°30'	"	"	IIa-O	1E05	" 270°
26	"	" " ?	14 04 34	+34°25,6			"	0:45	0:53	8m	V	1+	He 50				8	"	"	"	"	2E19	" 270° (Star 2')
27	"	" "	14 39 12	+53°44'			"	2:45	5:00	121m		1+	He 3c	+30			13	"	"	"	"	1W14	" 180° (Also neighboring Compact)
28	"	Irr. galaxy	4 15 06	+01°25'			2. III.	7:13	8:13	60m		1+	He 35	+35			13	"	"	"	"	2W53	" 270° (Also Star superposed)
29	"	Double comp. gal.	9 30 30	+55°27'			"	9:17	11:47	150m		2-3	"	30 + 30			13	"	"	"	"	1W12	" 135°
N2430	"	Compact galaxy	14 00 36	+51°57'		E?	"	1:25	2:05	40m		2-3	"	"			"	"	"	"	"	1E00	" 90°
31	"	Eruptive "	14 48 54	+35°45'			"	2:24	3:04	40m		3	"	"			"	"	"	"	"	0E49	" 90°
32	"	Compact gal. ?	14 04 34	+34°25'			"	3:24	3:30	6m		3	He + Ne	40 60			8	4°30'	"	"	103a-F	0W22	" 90° Star
33	"	Double Compact Gal.	4 55 12	-04°10'		E+W	3. IV.	7:19	9:17	117m		0-1	He 30	+30			13	"	"	"	IIa-O	3W21	" 296° (clouds)
N2434	ARP	Ann. 30, 178	7/23/16	-9/36	15	A	4 Mar	8:22	8:57	36m	15m	3	(A30	He 20)x2			13	9 B 3°25'	3"	6.85	IIa-O thick	0W37	Base ~~126°.8~~ 60
35	"	NGC 2268 + *	7/04/49	+84/25	13?		"	9:30	10:30	60m	V	3-3	"				9	"	"	"	"	3W39	
36	"	NGC 3936 + 37	9/35/57	+2/54			"	~~10:09~~	~~12:09~~	60m	V	2	"				"	"	"	"	"	~~2W~~ 1W37	~~345°.7~~ 356°.9
37	"	VV 243	8/51/44	+35/16			"	12:35	13:35	60m	V	2-3	"				"	"	"	"	"	3W48	
38	"	Anon pair gal	11/17/30	+51/40		K	"	14:21	15:16	45m	V	4	"				"	"	"	"	"	2W54	90°
39	"	VV 126	11/56/09	+36/34			"	15:29	16:53	84m	V	3-4	"				"	"	"	"	"	4W02	144°.8
N2440	Sc	3C 254 (2)	11 12 43	+40 49	18		Mar 29	7:37	13:37	360m		3 (1")	He + Ne	20 + 20			9	48 B 4°30'	3"	185	103aF (GG13) H2.5	3W07	Base 90°,
41	"	3C 287	13 28 59	+25 20	18		"	13:55	16:15	140m		3 (1")	He + Ne	25 + 20			9	"	"	"	IIaD thick	2W29	" 90°, thin since hi clouds.
42	"	3C 287	13 28 59	+25 20	18		Mar 30	7:52	9:47	115m		2 (2")	He + Ne	15			9	"	"	"	IIaD thick	3E36	" 310, stopped by clouds.
N2443	ARP	Anon pair gal	11/17/38	+51/40/50	17	Em	5 April	10:16	11:16	60m	4 min	2	A30	He 20 x 2			12	9 B 3°30'	3"	6.80	IIa-O thick	1W09	90°
44	"	Wilson 244 *	11/38/43	+9/20/20	14 +15	?	"	12:18	12:48	30m	60 min final	3	"				"	"	"	"	"	3W20	323°.7
45	"	NGC 5665	14/30/45	+8/13/00	14	Em	"	13:36	14:36	50m	0.4 min	3	"				"	"	"	"	"	1W06	37°.0
46	"	Anon Calif s.g.	13/28/52	+31/46/10	15 +18	?	"	14:16	16:00	74m	120m	3	"				"	"	"	"	"	3W42	3°.6
N 2447	Sc	Near 3C 194	8 07 23	+42 35			Apr 23	7:49	10:41	172m		3-4	He + Ne	15 + 15			9	48 B 4°30'	3"	185	IIaD thick	4W55	Base 90°, stopped by clouds.
48	"	3C 287	13 28 59	+25 20			"	12:17	15:17	180m		2-3	"	"			"	"	"	"	"	4W10	" 240°, some Moon.
49	"	BSO # 114	12 47 10	+37 42			Apr 24	7:52	9:22	90m		2-3	"	"			"	"	"	"	"	1E00	" 270°
50	"	3C 287	13 28 59	+25 20			"	9:38	12:30	172m		3	"	"			"	"	"	"	IIaD thick	1W26	" 270°.
51	"	3C 336	16 23 11	+23 50			"	13:36	15:36	120m		2-3	"	"			"	"	"	"	IIaD thick	1W35	" 270°, some Moon.
52	"	3C 186	7 41 58	+37 58			Apr 25	7:44	11:22	198m		3-2	"	"			"	"	"	"	"	5W58	" 270°, about 1/4 through high clouds
53	"	MSH 14-01. 21	14 54 03	-11 00			"	11:31	15:31	240m		3-2	"	"			"	"	"	"	"	2W06	" 0°.
54	"	3C 249.1	11 01 37	+77 11			Apr 26	7:36	8:00	24m		2-3	"	"			"	"	"	"	"	0E30	" 90°.
55	"	BSO # 16	14 53 15	+47 29			"	8:14	8:55	41m		2-3	"	"			"	"	"	"	"	3E25	" 90°.
56	"	MSH 14-01. 21	14 54 03	-11 00			"	9:12	15:35	383m		3	"	20 + 20			"	"	"	"	103aF (GG13) H2.5	3W16	" 270°.
57		3C 249.1	11 01 37	+77 11			Apr 27	7:38	8:38	60m		2-3	"	"			"	"	"	"	"	0W13	" 90°.
58		BSO # 114	12 47 10	+37 42			"	8:52	11:22	150m		3	"	"			"	"	"	"	"	1W12	" 90°.
59		3C 336	16 23 11	+23 50			"	11:40	15:30	230m		3	"	"			"	"	"	"	"	1W45	" 270°.

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, BRIDGE

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1965	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEE-ING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2460	ARP	MPI	9/52/40	+69/41/15			28 April	8:23	9:23	60m	240	3	He A	2x12 30x2			10	63B 90°	3"	6.85	103a-E a/p.	2h10	base 25° 8.5 N from nuc
61	"	DDG	11/17/44	+51/40/20	18	Em	"	10:09	12:30	150m	✓	4	"	"			"	"	"	"	103a-E " 1½	3h53	base 90°
62	"	Anon. Gal.	13/13/38	+26/11/35	19		"	13:13	15:39	146m	340	4	"	"			"	"	"	"	"	5h07	"
N2463	"	MPI	9/52/42	+69/14/10			29 April	7:58	9:20	90m	120	4	"	"			12	98B 90°	"	6.95	103a-E a/p + 1½	2h11	base 335° 8.5 arcmin N from nuc
64	"	see DD	11/25/44	+54/05/15	17	Em	"	9:46	10:46	60m	✓	4	"	"			"	"	"	6.85	IIa-O baked	2h05	base 0°
65	"	SWT	12/11/41	+13/44/05	19	E+C	"	11:32	13:02	90m	✓	4	"	"			"	"	"	"	"	3h35	base 270°
66	"	Anon Gal	13/13/38	+26/11/30	19	E+C	"	13:21	14:51	90m	✓	4	"	"			"	"	"	"	"	4h22	base 270°
67	"	CD*	16/35/00	+46/5/50	16	C	"	15:24	15:44	15m	✓	4	He NE	30 k2 30			"	"	"	6.95	103a-E a/p + 1½	1h55	base 109°
N2468	"	MPI cross ring ~~Anon *~~	9/54/50 ~~11/31/22~~	+ 46/35/40 ~~+46/40/50~~		~~Em~~	30 April	7:59	9:59	120m	✓	3	He A	20 k2 60x2			15	"	"	6.85	IIaD (IIIa-F) + 1½	2h53	75°.3 base
2469	"	~~Anon~~ SWT	12/11/41	+13/44/15	19	E+C	"	10:23	12:23	120m	✓	4		"			10	"	"	"	"	3h59	270° base
2470	"	Anon Gal	13/13/38	+26/11/40	19	E+C	"	13:42	14:32	110m	✓	3+		"			"	"	"	"	"	4h28	271° "
91	"	SWT	15/01/46	+23/31/45	14	C	"	15:01	15:36	35m	✓	4		"			"	"	"	"	"	3h24	34°.5 "
N2472	"	Anon *	11/21/22	+51/40/50	~~18~~	C	1 May	7:50	7:58	8m	✓	1-3	He N2	20 10x2			"	"	"	"	"	0h30	90° base
73	"	* NE of Nat	11/52/17	+43/40/55	18	C	"	8:30	9:30	60m	✓	2	He A	20 30x2			12	"	"	"	IIa-O baked	0h30	"
74	"	Anon Gal E of Nat	11/52/13	+43/38/45	18	C	"	9:44	10:44	60m	✓	3	"	"			"	"	"	"	"	1h45	"
75	"	VV42	12/35/50	+38/55/00	S	E	"	11:10	12:40	90m	180	2	"	"			"	"	"	"	"	2h57	"
76	"	see also	13/13/38	+26/23/05	19	C	"	13:14	14:44	90m	✓	3	"	"			"	"	"	"	"	4h24	"
77	"	Anon Galaxy	14/19/09	+51/52/15	18	E	"	15:11	16:41	30m	✓	2	"	"			"	"	"	"	"	4h46	"
N2478	ARS	Ton 730	13-42-08	+25 50	16		May 2	8:42	11.21	159	✓	2 (15")	H2 N2	25+25 5+5			12	40B 30°	3"	6.85	IIaD Bkd.	0h36	Stopped by Fog
79	"	" "	"	"	"		May 3	8.03	10:05	122	✓	1 (6")		"			"	"	"	"	"	0E37	" " "
80	"	" "	"	"	"		May 4/5	10.17	11:37	80	✓	2 (3")		"			10	"	"	"	"	1h00	W#2
81	"	BSO 105	13-09-55	+33 57 32	18		"	10:11	14:41	150	✓	2 (3")		"			12	"	"	"	"	4h36	W#2
82	"	3C 296	14 15 12	+10 58	13		"	15:08	15:38	30	45	1-2	He	15+15			9	"	"	"	IIaO Bkd.	4h29	W#3
83	"	Ton 256	16 12 37	+26 11	16		May 5/6	13:13	14:33	80	✓	2+	He N2	25+25 5+5			12	"	"	"	IIaD Bkd	1h30	W#2
84a	"	"	"	"	"		"	14:44	15:14	30	✓	1+	"	"			"	"	"	"	"	2h30	"
84b		"	"	"	"		"	15:15	15:33	18	✓	1+	"	"			"	"	"	"	"	↓	"
N2485	ARP	SNT	11/45/53	+56/08/48	14	C	21 May	10:21	10:41	20m	✓	0	A30 NC30	x2			12	98B 90°	3"	6.85	IIa-O bkd	3h07	Hi wind
86	"	"	11/47/14	+56/05/18	17	?	"	11:00	11:40	40m	180	0	"				"	"	"	"	"	4h04	
87	"	"	13/28/55	+31/40/40	15	C	"	12:07	12:30	30m	✓	0	"				"	"	"	"	"	3h13	
88	"	"	13/29/59	+30/41/35	16	C	"	12:51	13:31	40m	✓	0	"				"	"	"	"	"	4h13	moonlight
89	"	VV48 comp	13/57/30	+37/55/50	S	E?	"	14:05	14:45	40m	?	1	"				"	"	"	"	"	4h00	" about by fog
N2490	Z	Compact galaxy	9-55-54	+51° 54'	16		May 27	8:15	9:30	75m	✓	2-3	He	35+35			13	98B 30°30'	3"	6.85	IIa-O	4h08	Base 90°
91	"	SN in NGC4666	12-42-36	−0° 17'	14.5		"	9:50	10:20	30m	✓	3	"	45+45			10	"	"	"	"	2h12	" 0° supernova Chavira
92	"	Compact galaxy	16-22-06	+41° 12'	16	Em	"	10:40	11:40	60m	✓	4	"	45+45			10	"	"	"	"	0E08	" 90°
93	"	" "	17-27-12	+45° 35'	17		"	13:30	15:00	90m	✓	3-4	"	38+38			12	"	"	"	"	2h08	" 0°
N2494	ARS	new BSO 18-dd 15	14-55-54	+43 26 40	18		May 28/29	11:33	14:58	150	✓	4	He N2	25+25 N0 3+3			12	98B 40°30'	"	"	IIaD Bkd.	4h42	
95a	"	Ton 202	14-25-58	+26 42	15		May 29/30	8:23	9:23	60	✓	3		"			"	"	"	"	"	0E20	
b	"	"	"	"	"		"	9:23	9:53	30	✓	3		"			"	"	"	"	"	0h10	
c	"	"	"	"	"		"	9:53	10:08	15	✓	3		"			"	"	"	"	"	0h25	
96	"	new BSO 12, dd 20	14-45-45	+42 54 30	18		"	10:35	13:35	180	✓	4		"			"	"	"	"	"	3h33	

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	1965 DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2497	ARS	3C-371a	18-07-23	+69 49 30	14		May 29/30	14:09	15:10	60m	✓	2					9	92B 4°30'	3"	6.85	IIaD Bkd.	1h47	
98	"	3C 293	13-50-44	+31 35	16		May 30/31	8:27	10.27	120		2					12	"	"	"	"	1h23	Slit along major axis
99	"	3C 305	14-48-31	+63 26	15		May 30/31	10:50	11:50	60		3					9	"	"	"	"	1h48	P.A. = 66°.5. Three * almost E-W
2500	"	3C 390.3 &	18-44-44	+79 44	16		"	12:19	13:49	90		4					12	"	"	"	"	0E09	Slit E-W.
01	"	3C 371a &	18-07-23	+69 49	14		"	14:04	14:14	10m		4					9	"	"	"	"		Slit E-W. Untracked
	"		"	"	"		"	14:14	15:15	61m		4					"	"	"	"	"	1h55	Trailed
N2502	JG	Feige 42	11 26 30	+37 40	13	Ap	June 1/2	8.35	9.00	25	✓	1	He 45+45 He 3+30		W1	75m	8	67B 8°00	3"	6.95	IIaO Bkgd	2h29	Slit E-W
03	"	GD-140	11 35 15	+30 00	14.5	DA	"	9.16	9.32	16	✓	0	"		W1		"	"	"	"	"	2h51	" "
04	"	Case 1	12 14 03	+52 41	13.9	DAe	"	9.49	10.27	39	✓	1	"		W1		"	"	"	"	"	3h08	"
05	"	GD 148	12 33 18	+47 50	14.5	DA	"	10.37	11.42	65	✓	1-2	"		W1		"	"	"	"	"	4h01	"
06	"	GD 185	15 32 18	-02 20	14.5	DA	"	11.48	13.20	82	✓	1	"		W2	75m	"	"	"	"	"	2h43	"
07	"	G 155-34	18 41 02	-11 11	14.3	DA	"	13.44	14.34	50	✓	1	"		W2		"	"	"	"	"	0h14	"
08	"	3C 371	18 07 23	+69 49	14	C	"	14.40	15.31	41	✓	1	"		W2		"	"	"	"	"	2h16	" Decent
N2509	JG	Case 1	12 14 03	+52 41	13.9	DAe	June 3/4	11.08	11.45	34	✓	2	"		W2	75m	8	"	"	"	He O BGB	4h34	
10	"	GD 163	14 08 56	-132 18	14	DA	"	11.53	12.25	32	✓	2	"		W2		"	"	"	"	"	3h49	
11	"	G 164-34	16 55 38	+21 30	14.3	DA	"	12.41	13.22	41	-	1	"		W2		"	"	"	"	"	1h28	
12	"	GD 210	17 32 50	-13 58	13	Ap	"	13.40	14.00	20	-	2-1	"		W2		"	"	"	"	"	1h31	
13	"	V700 Cyg B	20 29 52	+38 40	13.5	dK	"	14.35	15.05	40	-	3	He 60+60 Ar 40+40		W2		10	64B 15°00	"	"	"	0E24	
14	"	V700 Cyg A	"	"	11.9	G	"	15.09	15.22	13	-	2	"		W2		10	"	"	"	"	0E00	
N2515	Sc	1252+11	12 52 54	+11 52			June 26	8.34	10.04	90		1-2	He 15+15 Ne 15+15				9	92B 4°30'	"	6.85	IIaD Bkd	3h44	Base 270°
16	"	3C 380	18 28 37	+48 43			"	10.27	12.42	135		2	"				"	"	"	"	"	0h48	" 90°
17	"	1252+11	12 52 54	+11 52			June 27	8.37	10.07	90		2-3	"				"	"	"	"	"	3h51	" 270°
18	"	3C 336	16 23 11	+23 50			"	10.28	13.43	145		2-3	"				"	"	"	"	"	3h58	" 270°
19	"	3C 345	16 41 48	+39 52			"	14.03	14.48	45		2-3	"				"	"	"	"	"	4h44	" 270°
20	"	1252+11	12 52 54	+11 52			June 28	8.25	9.55	90		2-3	"				"	"	"	"	IIaD Bkd	3h43	" 270°
21	"	3C 343	16 34 13	+62 50			"	10.20	13.05	165		2-3	"				"	"	"	"	IIaD Bkd	3h13	" 90°
22	"	3C 345	16 41 48	+39 52			"	13.13	14.49	90		2-3	"				"	"	"	"	"	4h39	" 270°
23	Z	[illegible]	12 49 [illegible]	-00 55	16		June 29	[illegible]	[illegible]	[illegible]	✓	2-3	[illegible]				9	[illegible]	3"	6.85	103a-F	3h[illegible]	Base 0° (Supernova Revived) SN 1965i
24	"	[illegible]	11 42 36	-00 12	17.5		"	9.33	10.[illegible]	[illegible]	80	3-4	He 30+10				"	"	"	"	IIa-O	[illegible]	" 0° SN 1965i
25		(Hanny's Galaxy)	10 36 18	+38° 17'			"	10.35	10.[illegible]	15m	5	3-4	"				10	"	"	"	"		270°
26	"	Compact galaxy	17 24 12	+51° 31'	19		"	0.[illegible]	0.[illegible]	131m	✓	[illegible]	[illegible]				14	"	"	"	"	[illegible]	" 90°
27	"	SN in NGC4666	12-41-36	-00 12	17.5		June 30	8.37	[illegible]	60m	✓	3	He 22+15 Ne 5+5				10	46°30'	"	"	103a-F	3h49	" 0° SN 1965i
28	"	Compact galaxy	17-27-36	+53° 35'			"	10.[illegible]	11.[illegible]	60m	✓	5	He 22+15 Ne 7+5				13	"	"	"	"	[illegible]	" 166°.5
29	"	Compact galaxy	18-24-54	+34° 15'			"	0.[illegible]	[illegible]	30m	[illegible]	[illegible]	[illegible]				"	"	"	"	"	[illegible]	" 166°.5
2530	"	SN NGC4666	12-41-36	-00 55			July 1	8.35	[illegible]	40m	✓	2-4	[illegible]				11	"	"	"	"	[illegible]	" 0°
31	"	H II 46	17-54-24	+32° 42'			"	9.35	10.[illegible]	40m	✓	4	"				11	"	"	"	"	[illegible]	" 90°
32	"	Star or galaxy	16-56-18	+38° 17'			"	10.34	[illegible]	5m	[illegible]	4	He 60 Ar 40				9	"	"	"	"	0h[illegible]	" 90°
33	"	NGC 6190	16-15-00	+39° 33'			"	10.[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]				13	"	"	"	"	2h30	" 90°
34	"	Group of galaxies No. 1, 5	23-50-12	+14° 05			"	1.42	3.00	78m	150	[illegible]	"				"	"	"	"	"	[illegible]	" 90°

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NO.	OBS.	OBJECT	R. A. 1950	DECL.	MAG.	SP.	1965 DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2535	Z	Compact galaxy	16-25-06	+40° 48′	16	G	21. VII	8:39	9:39	60m	150m	1-2	He 37+37 Ne 7+7				13	98B 4°36′	3″	6.85	103a-F	1W25	Base 180°
36	"	3C 340.3	18-49-12	+79°53.1		Em.	"	10:05	11:35	90m	✓	3	He 37+37 Ne 7+9				9	"	"	"	"	1W02	" "
37	"	Compact galaxy	23-38-06	-02°53′		G	"	1:18	1:45	30m	60m	3	He 50, Ne 14 He 32+32				13	"	"	"	"	1E38	" " Moon LP 101-
38	"	White Dwarf	16-33-24	+57°15′	15.5	Cont.	22 VII	8:52	10:24	50m	✓	4	Ne 7+7				10	"	"	"	"	2W06	" 20° clouds 15/16
39	"	Compact galaxy	21-10-54	+02° 34′		G	"	11:23	0:03	40m	✓	5	He 25+5 Ne 6+6				13	"	"	"	"	0E51	" 180° "
N2540	"	Compact galaxy	23-34-00	+3° 29.5		G	"	1:29	2:29	60m	✓	5-6	"	"			"	"	"	"	"	0E54	" 180° Moon. No.2 of two
41	"	" "	16-25-06	+40° 48′	16	G	23. VII	8:27	9:57	90m	✓	3-4	"	"			"	"	"	"	"	1W51	" 180°
42	"	" "	18-07-10	+69° 48.0			"	10:43	11:53	70m	200	3	"	"			"	"	"	"	"	2W06	" 135°
43	"	NGC 7625	23-18-00	+16° 57′		Comp.	"	1:25	1:45	80m	100	3	"	"			"	"	"	"	"	0E12	" 180°
44	"	3C 371	18-07-20	+69° 48.7		Em.	24. VII	8:31	9:31	60m	✓	3	He 30+30 Ne 7+7				11	"	"	"	"	0E12	" 180°
45	"	3C 390.3	18-45-41	+79° 42.7		"	"	9:50	11:20	90m	✓	3	"	"			"	"	"	"	"	0W59	" 180°
46	"	Ell. galaxy	20-20-42	+0° 36′		G	"	1:05	2:35	90m	✓	3	He 27+27 Ne 6+6				12	"	"	"	"	2W38	" 235°
47	"	Compact galaxy	16-27-36	+40° 59′		G	25. VII	8:32	10:02	90m	✓	1-2	"	"			13	"	"	"	"	2W03	" 90°
48	"	3C 371	18-07-20	+69° 48.7		Cont.	"	10:16	11:46	90m	✓	1-2	He 32+32 Ne 7+7				10	"	"	"	"	2W07	" 180°
49	"	Comp. gal. or star?	20-34-48	+13° 03′		K	"	1:24	2:34	70m	20m	2-3	He 25+5 Ne 6+6				13	"	"	"	"	2W26	" 270°
N2550	"	(LP 101) 2+3 of group	16-33-24	+57° 14′		R, K	27. VII	8:27	9:27	60m	10m	3	32+32, 7+7				10	"	"	"	"	1W28	" 186.5
51	"	3C 371	18-07-20	+69° 48.7		Em.	"	9:49	10:49	60m	✓	3-4	"	"			"	"	"	"	"	1W17	" 180°
52	"	Anon galaxy	23-15-42	+3° 54′		K	"	0:25	3:05	160	200	3	25+25 6+6				13	"	"	"	"	0W16	" 180° (Eruptive galaxy)
N2553	SPK	NGC 129, #106	00-28-00	+60° 02′	14.7	A	Aug 20/21	9:15	11:13	118m		2-1	He 45+45 A 60+60				11	64B 15° 20	3″	6.95	IIa-o baked	3E04	Widened 1 mm
	"	" " #113	"	"	14.3	A	"	11:19	2:48	89m		2					"	"	"	"	"	1E29	center Mornat and
2554	"	NGC 129, M	"	"	14.6	A3V	Aug 21/22	9:23	13:18	235m		1-2	He 45+45 A 60+60				10	"	"	"	"	0E55	Widened 2.2 mm.
2555	"	NGC 129, P	"	"	14.8	A	Aug 22/23	9:28	12:56	208m		2-3	"				"	"	"	"	"	1E13	" "
2556	"	NGC 129, #73	"	"	14.3	F0V	"	13:10	15:06	116m		3	"				"	"	"	"	"	0W57	" "
2557	"	γ Oph	17-46-08	+2 43	3.7	A0V	Aug 23/24	7:16	7:19	—		1-2	—				"	"	"	"	"	0E06	5 my screen, 2.5 mm window
2558	"	α Del	20-38-01	+15 47	3.9	B9V	"	7:57	8:02	—		1-2	—				"	"	"	"	"	2E14	3 sweeps at 2500 "/hr,
2559	"	ε Agr	20-45-47	-09 38	3.8	A1V	"	8:11	8:15	—		2-3	—				"	"	"	"	"	2E09	1 out of focus, 1 in, 2 in.
2560	"	c And	23-36-25	+43 04	4.3	B8V	"	8:31	8:35	—		3	—				"	"	"	"	"	4E39	
2561	"	NGC 129, #97	00-28-00	+60 02	13.6	B8V	"	8:57	10:35	98m		2	He 45+45 A 60+60				"	"	"	"	"	3E31	
2562	"	NGC 129, J	"	"	13.6	B6V	"	10:46	12:27	101m		2-3	"				"	"	"	"	"	1E35	
2563	"	NGC 129, #58	"	"	14.2	B9V	"	13:15	15:54	(59m)		2	"				"	"	"	"	"	1W49	30 min lost to stuck phantom!
2564	"	θ And	00-15-15	+38 29	4.4	A2V	"	16:06	16:13	—		3	—				"	"	"	"	"	2N20	Routine as 2558
2565	"	λ Gem	07-16-05	+16 36	3.7	A3V	"	16:22	16:26	—		2	—				"	"	"	"	"	4E27	"
2566	"	γ Oph	17-46-08	+2 43	3.7	A0V	Aug 24/25	7:10	7:16	—		2	—				"	"	"	"	"	0E04	"
2567	"	λ Cyg	20-46-03	+36 22	4.4	B5V	"	7:26	7:32	—		2	—				"	"	"	"	"	2E48	"
2568	"	16 Peg	21-51-29	+25 45	4.9	B3V	"	7:41	7:51	—		2	—				"	"	"	"	"	3E35	1, 2, 5 sweeps all in focus
2569	"	NGC 129, H	00-28-00	+60 02	13.4		"	9:12	10:10	58m		2	He 45+45 A 60+60				"	"	"	"	"	3E52	
2570	"	NGC 129, #109	"	"	13.5		"	10:20	11:15	55m		2	"				"	"	"	"	"	2E47	
2571	"	NGC 129, #108	"	"	13.9		"	11:24	12:58	94m		2-3	"				"	"	"	"	"	1E03	
2572	"	NGC 129, #5	"	"	14.2		"	13:15	15:20	125m		3	"				"	"	"	"	"	1W18	

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1965

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N2573a	RPK	S Cas	01-23-31	+66 03	29	A5 I	Aug 24/25	13 34	15 41	2		3-4					10	64B 15°20	3"	685	[illegible]0 F[illegible]d	0 44	Fad and of focus
b	"	19. Tau	03-43-07	+24 22	4.3	B6 I	"	15 47	15 48	1		"					10	"				1 53	
c	"	λ Gem	07-16-05	+16 36	3-7	A3 I	"	15 55	15 56	1		"	—				10	"				4 53	classif. rehsp
2574	JLG	M92 I-13	17 16 31	+43 14	15.2	G	Aug 25/26	8 05	12 18	253	200	5	He, No, A	(e)1	90°		9	64B	3"	687	II a O IIIbd	5 32	Thin clouds
75	"	M15 III-71	21 28 24	+12 01	15.8	F	"	12 55	15 23	145	300	2	us + 45	(e)			9	15°40			"	4 26	Heavy clouds. NG
76	JLG	M92 XII-1	17 16 45	+43 10	15.2	F	26/27	8 04	12 12	24.3	✓	3	"	W1	90°		10	[illegible]	3'	687	II a O IIIbd	5 36	
77	"	M15 IV-45	21 28 30	+12 02	15.6	F	"	12 35	16 04	204	300	4	"	W1			10	64B				5 11	
78	JLG	GD 213	17 42 08	+21 14	13.5	sdG	Aug 27/28	7 41	7 53	12	✓	3	He 40 + 40 Ne 20 + 20	W1	90°		"	63B 8°15	3"	687	II a O IIIbd	0 49	
79	"	GD 211	17 36 36	+09 17	14.5	sdG	"	8 02	8 40	38	✓	3	"	"			"	"	"	"	"	1 40	
2580	"	GD 217	19 02 11	+13 31	14.0	sdG	"	8 59	9 14	20	✓	4	"	"			"	"	"	"	"	0 43	
81	"	GD 219	19 20 12	+14 39	13.0	DA	"	9 24	9 32	8	✓	4		"			"	"	"	"	"	0 30	
82	"	Tons, 12	20 57 00	−27 23	15.8	DA?	"	10 00	10 53	53	45	2	IIa 10+10 oVa 10+10 He, A 45+45 Ne	"			"	"	1.4	6.4	"	0 34	Sky bright
83	"	M15 IV-45	21 28 30	+12 02	15.6	F	"	11 24	15 44	260	300	4	"	"			"	64B 16°20	3"	6.57	"	4 56	
2584	JLG	M92 I-13	17 16 31	+43 14	15.2	G	Aug 28/29	7 37	11 22	225	✓	3-1	He No A 45 + 45	W1	90°		9	64B	3"	6.57	II a O IIIbd	4 49	
85	"	G 28-43	23 07 54	+00 35	11.2	sdG	"	11 45	11 58	10	✓	1	He Ne	"			"	16°20	"	"	"	0 28	
86	"	−0°4470	23 08 10	+00 34	10.7	sdG	"	12 00	12 12	6	✓	2	"	"			"	"	"	"	"	0 19	
87	"	GD 246	23 10 44	+10 38	12.5	DC	"	12 37	12 53	26	✓	3	"	"			"	"	"	"	"	0 35	
88	"	Feige 111	23 49 46	+08 29	11.2	Ap	"	13 00	13 08	8	✓	4	"	"			"	"	"	"	"	0 [illegible]	
89	"	Tons 120	23 48 30	−26 31	15.5	Bkgm.	"	13 31	14 00	35	✓	2-3	He Ne 10 + 10	"			14	63B 8°45	1.4	6.20	"	0 31	Confusion? Broad Emission.
2590	"	Tons 151	~~23 17 54~~ 00 17 50	~~−32~~ 07	16.0	Bkgm. DA	"	11 26	15 15	49	✓	3	"	"			"	"	"	"	"	1 40	
91	"	Tons 243	2 12 53	−23 01	15.6	DA	"	15 25	15 55	30	✓	2	"	"			"	"	"	"	"	0 27	
2592	Sc	3C 446	22 24 00	− 5 07	18½		Sky 23	7 23	11 53	270		3	He 15+15 Ne 15+15				9	98B 4°30	3"	6.85	IIa D IIbl	1 54	Base 180°
93	"	3C 9	00 18 38	+15 29	18		"	12 13	15 58	225		3	"				"	"	"	"	"	4 06	− 225°
94	"	3C 454	22 49 53	+18 38	18½		Sky 24	7 15	11 30	255		3-4	"				"	"	"	"	"	1 08	− 270°
95	"	B 0132+07	01 33 30	+ 8 01	18½		"	11 59	16 09	250		4	"				"	"	"	"	"	3 04	− 287°
96	"	3C 446	22 24 00	− 5 07	18½		Sky 25	7 18	11 00	222		2-3	He 5+5 Ne 8+8				12	"	1.4	6.4	103a F, Hl. 2⅔	1 08	− 180°
97	"	3C 2	00 04 37	− 0 16	19½		"	11 48	15 48	240		3-2	He 10+10 Ne 5+5				"	"	"	"	IIa D IIbl	4 17	− 180°
98	"	3C 432	21 21 10	+16 56	18		Sky 26	7 06	13 06	360		2	He 15+15 Ne 15+15				9	"	3"	1.85	"	4 18	− 270°
99	"	KR 141	23 26 28	+29 26	17½		"	13 28	16 08	160		3-2	"				"	"	"	"	"	5 18	− 270°
N2600	AKP	SWT	22/56/02	−3/53	19		28 Sept.	11 [illegible]	12 [illegible]	71		2	[illegible]				10	98B 4°00	3"	6.15	II a [illegible]	2 05	Base 270°
2601	"	"	1/51/56	−14/06	15		"	12 39	13 09	30		2	"				"	"	"	"	"	1 23	"
2602	"	"	1/15/62	+3/21	16		"	13 30	14 15	45		2					"	"	"	"	"	1 14	"
2603	"	SWN	2/39/03	+38/58	10		"	14 32	14 48	16		2	"				"	"	"	"	"	0 54	"
2604	"	SWT m. NGC 7961	3/38/27	+6/25	16		"	15 13	16 23	70		"	"				"	"	"	"	"	3 30	90°
N2605	"	SWN m. NGC 7550	23/19/21	+18/44	15		29 Sept.	7 35	7 55	20		2	"				"	"	"	"	"	2 37	"
N2606	"	CG	22/13/[illegible]	+13/42	19	?	30 Oct.	7 48	8 33	45	90	2	"				"	"	"	"	"	0 44	150° Jumped on bkt. − ½ offset ¼ mirror
2607	"	CG	23/15/57	+15/35	19	?	"	8 58	9 37	43	90	3	"				"	"	"	"	"	0 [illegible]	" mirror
2608	"	SWT	22/14/42	−18/12	15	[illegible]	"	9 37	10 07	30	✓	3	"				"	"	"	"	"	6 42	" "

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, 601660

1965

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N2610	Arp	VV221+ star	2/48/33	+13,47	17.9		Oct	13:37	15:42	125m	✓	2-3	Ne	20			12	488	3"	6.85	IIa-F baked	1h53	base = 283.2
11	"	SWN m. 3 C111	6/52/33	+54/12	10		"	16:11	16:28	17m	✓	1											150°
N2612	"	SNT	22/31/15	+11/30	18		20th	9:11	10:11	60m	✓	4					9					0h46	"
N2613	"	NGC 7237 Comp	22/3/02	+13/43	16		3 Oct.	7:33	8:17	45m		4										0h52	base 133.5 Mmm 1/2
14	"	2 cg III, 2	00/09/02	+10/50	18		"	8:58	9:58	60m	✓	4					11					1h	37° Mmm
15	"	NGC 244	00/44/30	-15/44	17		"	11:40	12:40	60m	✓	4					12					1h	150
16	"	NGC 7637 on 15	00/47/11	-12/51	15		"	13:15	14:15	60m	✓	4-3					11					3h33	base = 303.2
17	"	Sm. Neb	2/26/50	+19/32	19		"	14:39	16:16	97m		3					11					3h54	clipped by clouds base = 8
2618	Hiv	Tom 12	0-37-56	-21 16			21 Oct	8:59	11:45	171m		1	Hg	1+1	1hr 16m #16		9	63B 7°				1h21	base 124°
19	"	#11	5-32-30	+22° 01'			"	12:21	16:56	275m		2		2+2			"	64B 16°				1h39	Base 59°.4
N2620	Se	3C 446	22 24 09	- 5 04			Oct 25	6 41	11 41	300m		3-2	Ne	5+5			14	48B 4°30'	1:2	1:2	103a F Hadlock 25°	3h48	Base 180°.
21	"	3C 181	7 28 14	+ 14 42			"	12 33	4 33	240		2-3	Ne	5+5			9	"	3"	1:85	IIa D Hdl	6E20	- 180°.
22	"	3C 379.1	18 25 22	+ 74 20			Oct 26	7 14	9 49	150		2-3	Ne	5+5			"	"	"	"	"	6E02	- 90°.
23	"	KR 141	23 26 28	+29 26			"	10 10	13 10	180		2-3	Ne	5+5			"	"	"	"	IIa D Hdl	4h19	- 270°.
24	"	3C 109	4 11 47	+11 07			"	13 31	16 31	180		3	Ne	5+5			"	"	"	"	"	3h05	- 270°.
25	"	3C 2	0 04 37	- 0 16			Oct 27	6 55	12 55	360		3	Ne	8+8			"	"	"	"	IIa D Hdl	3h28	- 180°.
26	"	3C 36	1 05 58	+45 26			"	13 34	16 34	165		3	Ne	8+8			"	"	"	"	"	5h56	- 90°
N2627	ARP	em II	22/39/19	+15 37	18		28th	6:[illegible]	[illegible]	[illegible]m		5	Ne	5+2			10	48B 4°30'	3"	6.85	IIa-D Hdl	6h25	base 180°
28	"	em 3	22/39/19	-12/52	19	em?	"	9:08	11:08	120m	middy	5					"	"	"	"	"	1h	"
29	"	2 cg III, 2	22/08/50	+10/46	17	em	"	12:31	13:33	62m	✓	5					"	"	"	"	"	4h	- 270° bi-domed
30	"	em II	22/39/19	+15 137	18	do	29 Oct	6:38	7:38	60m	✓	5					"	"	"	"	"	6E33	"
31	"	em 3	22/39/19	-12/52	19	em	"	7:56	9:14	78m	20m	5	Ne	45 x2			"	"	"	"	"	6E39	" 2 images
32	"	SNT	23/43/33	-03/09/50	17	obs.	30 Oct.	7:04	7:30	30m	✓	5	Ne	10			"	"	"	"	"	1E25	base 150°.3
33	"	C.g. SW of NGC 7637	23/12/52	+13/38/35	19	?	"	5:13	6:13	120m		3					"	"	"	"	"	2h37	" 270°
34	"	NGC 7799 + c.g.	3/01/37	-15/46/25	13+15		"	12:54	12:54	120m		5					12	"	"	"	"	3h42	" 135.9
35	"	Bok Bl. Gal.	4/31/19	+5/17/05	16	em	"	13:22	14:22	60m	45	4					"	"	"	"	"	4h32	" 270°
36	"	cg Left #2	7/35/22	+55/21/40	18	obs.	"	4:40	6:10	90m	✓	4-5					"	"	"	"	"	6E37	" 90°
37	"	cg #2	8/35/52	53/10/35	18	obs.	"	6:20	6:31	11m	✓	4					"	"	"	"	"	1E34	" 90°
38	"	obs 9	22/38/46	+17/51/25	17	obs	31 Oct.	6:39	7:56	57m	✓	5					"	"	"	"	"	5h	base = 270°
39	"	em 3	22/39/12	-12/52/25	19	em	"	8:26	9:36	70m	middy	4					9	"	"	"	"	0E	"
40	"	em 4	03/50/42	-13/36/45	19	?	"	10:04	11:31	91m	?	4					"	"	"	"	"	1h24	"
41	"	Bok Bl. Gal.	4/31/19	+5/17/05	16	em	"	12:22	13:37	95m	70	4					"	"	"	"	103a-F	0h20	"
42	"	Herg Nebulous Star	8/57/57	+53/11/05	18	?	"	14:30	15:40	50m	40	5	"				12	"	"	"	IIa-D Hdl	8E23	base 198.8
43	"	Herg 12 Star m.	9/38/12	+33/27/50	18	obs	"	15:55	16:50	55m	✓	5	"				"	"	"	"	"	1E53	270°
V2644	Z	LP 9-231	7-56-47	+82°43'54"	15.8	W.D.	Nov. 1	7:16	7:49	23m	✓	2-3	Ha 9+9 Na 35+35				9	98B 4°30'	3"	6.85	103a-F	4h53	Base 90°. Clouds. Mcon Probable P/gmy.
45	"	3C 29	0-54-59	-1° 38'			"	10:35	11:01	27m	20	3	Ho 33+33 Na 4+4				13	"	"	"	"	1h04	" 0° Very cloudy, Mcon " "
46	"	Compact object	0-51-00	+11° 30'			"	11:30	11:40	10m	20m	3	Hesel Ns+				9	"	"	"	"	1h46	" 0° " " "
47	"	PHL 1281	2-22-42	+2° 58'	16m7		"	1:35	2:44	99m	✓	2-3	"	"			11	"	"	"	"	2h50	" 0 " "
48	"	SN NGC 3631	11-18-18	+53°23'	16		"	2:18	3:55	70m	✓	2-3	Ho 27+27 Na 2+2				10	"	"	"	"	6E11	" 180° " "

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	1965 DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2649	Z	LP 9-231	17-56-47	+82° 43' 54"	15.3	A	2. XI.	6:29	7:30	55m	✓	2	He 3+35 Ne 7+7				9	98 B 4°30'	3"	6.85	103a-F	4W37	Base 90° Moon Pygmy ultradiffuse.
2650	"	Compact galaxy	21-55-48	+08° 11'			"	7:58	8:38	40m	60m	3	He 25+25 Ne 4+4				12	"	"	"	"	1W43	" 00 Moon underexposed.
51	"	" "	22-51-00	+13° 25'		Em	"	8:57	9:27	30m	✓	3	He 35+ Ne 7+				9	"	"	"	"	0E13	" 270° Moon.
52	"	PHL 1281	02-22-42	+02° 58'	16.7		"	11:48	0:35	45m	✓	3	"				"	"	"	"	"	1W13	" 00 "
53	"	3C 177	07-21-36	+15° 18'			"	1:25	2:40	75m	100	3-4	He 13+	Ne 3+			13	"	"	"	"	1E46	" 180°
54	"	Compact galaxy	01-19-30	-01° 18'	15.2	Em.	26. XI.	8:59	10:09	30m	60m	2	He 12+12	Ne 3+3			14	"	"	"	"	1W25	" 180° No. 84 of Cl 0124-0138, clouds
55	"	Double galaxy	08-55-48	+06° 26'	15.5	"	"	0:21	1:51	90m	✓	2-3	"	"			"	"	"	"	"	2E29	" 180° Brigller galaxy. Clouds
56	"	Compact galaxy	09-55-54	+51° 45		Gr	"	2:37	4:07	90m	✓	3	He 24	Ne 5			13	"	"	"	"	1E12	" 180° "
57	"	" "	23-26-12	+14° 25'	15.9	Gr	27. XI.	6:19	7:59	90m	150	2	" 22+22	" 3+3			14	"	"	"	"	1W12	" 180° Clouds, Moon
58	"	" "	01-19-30	-01° 18'	15.2	Em	"	8:11	9:17	66m	60	2	" 16+16	" 4+4			12	"	"	"	"	0W36	" 180° " "
59	"	" "	23-26-12	+14° 25'	15.9	Gr	28. XI.	6:21	8:21	120m	✓	1-2	" 22+22	" 3+3			14	"	"	"	"	1W38	" " "
2660	"	" "	01-19-30	-01° 18'	15.2	Em	"	8:35	9:35	60	✓	2-3	" 26+26	" 3+3			12	"	"	"	"	1W00	" " "
61	"	Galaxy, Fornax cl.	03-33-06	-31° 20'		Gr	"	10:01	11:01	60m	✓	2	" 28+28	" 3+3			11	"	"	"	"	0W11	" " "
62	"	PHL 1376	02-32-30	+03° 31'	12.7	W.D.	"	1:15	1:39	24m	✓	0+	He 3+3	Ne 4+4			10	"	"	"	"	3W50	" 270° Drifted (Clouds)
N2663	Sc	3C 356	17 23 31	+50 59			Nov 30	6:13	7:13	60m		2	15+15 Ne	15+15 He			9	98 B 4°30'	3"	6.85	IIaD thd	6W40	Base 90° Moon
64	"	3C 438	21 54 26	+37 50			"	7:35	8:35	60		2	"	"			"	"	"	"	"	3W35	" 90° Moon
65	"	M03-19	3 49 54	-14 35			"	8:55	10:25	90		2	20+20 He	20+20 He			"	"	"	"	103aF, fl 2½'	0E33	" 270° Moon
66	"	3C 57	2 00 17	-11 43			"	10:51	12:25	94		1	"	"			"	"	"	"	"	3W16	" 270°
67	"	3C 208	8 51 16	+14 00			"	12:52	16:52	240		2-3	15+15 Ne	15+15 He			"	"	"	"	IIaD thd	0W54	" 270° ~~Moon~~
68	"	4C 15.1	0 04 13	+15 56			Dec 1	6:12	7:04	50		2-3	"	"			"	"	"	"	"	0E05	" 270° Moon
69	"	3C 57	2 00 17	-11 43			"	7:22	8:42	80		2	"	"			"	"	"	"	"	0E22	" 270° Moon
70	"	M03-12	3 49 54	-14 35			"	8:57	10:17	80		2-1	"	"			"	"	"	"	"	0E37	" 270° Moon
71	"	3C 208	8 51 16	+14 00			"	12:40	14:20	100		2	"	"			"	"	"	"	IIaD thd	1E34	" 270°
2672	"	0922+14	9 23 15	+14 53			"	14:33	17:05	152m		3-1	"	"			"	"	"	"	"	0W39	" 270°
2673	Sc	~~2-Nov-73~~ Nov 2 Per M31	3-29-05	+43°45'			Dec 2	13:09	15:09	120m	x2	1	He 3+3 Ne 3+3		90m 100m	D10	9	6+3 16°25' 98 B 4°30'	3.75"	6.85	IIa-O bkd IIa-F	4W41	" 209°.5
74	"	3C 273	12-27-29	+2°15'			"	15:52	17:36	104m	✓	1	He	15+15	120m	-	"	"	"	"	IIa-F Masked	1E49	" 270 Δ1c
75	"	3C 273	"	"			" 3	15:15	17:39	135m		2	"	"			"	"	"	"	IIa-F	2E02	" " Δ2 out of focus!
76	"	"	"	"			"	15:15	17:38	143m		2-3	"	"			"	"	"	"	"	1E39	90m through Wratten 4.
2677	Sc	2338-16	23 39 22	-16 31			Dec 20	6:34	7:17	43m		1-2	He + Ne 12				17	98 B 4°30'	3"	1.85	IIaD thd	1W49	Base 270°; stopped by clouds.
78	"	3C 68.2	2 32 20	+31 26			"	9:50	13:53	78m		1-2	He + Ne 12+12				"	"	"	6.85	"	5W32	" 42°; interruptible 10:2-12:49.
79	"	2338-16	23 39 22	-16 31			Dec 23	6:14	8:14	120m		1-2	He 4+4	Ne 4+4			"	"	"	"	"	2W58	" 0°
80	"	M03-19	3 49 54	-14 35			"	8:42	12:42	240m		1-2	4+4	4+4			"	"	"	"	"	3W15	" 270°; midband 3-4".
81	"	SN NGC 3074	9 57 40	+35 33	16		"	13:03	13:33	30m		2	8+8	8+8			13	"	"	"	IIaD thd	2E01	" 214°.5. Discussed by C. Rudnicki.
2682	"	0922+14	9 23 15	+14 53			"	13:51	17:21	210m		2-3	4+4	4+4			"	"	"	"	IIaD thd	2W22	" 270°
2683	AS	~~1966-28~~ PHL 1049	~~17-33-28~~ 17 48	18			1966 Jan 19/16	7 17	8 43	86m	300	<1	15+15	3+3			13	"	"	"	IIaD bkd	3W13	Stopped by clouds.
N2684		Hyades # 4	3 30 43	+23 33	9.9	K0	Jan 17/8	8:23	8:33	10m	K2	0	—	—			10	R+L #1 15°30'	3"	6.85	IIa-O baked	1W03	
2684	"	Hyades # 46	4 21 35	+14 35	10.2	K0	"	8:39	8:49	10m	K2	0	—	—			10	"	"	"	"	0W28	center (stopped by clouds)
2685	"	Pleiades HII 451	3 42 40	+24 48	14.5		Jan 18/16	6:38	8:39	121m	OK	1-2	He 45+45				10	"	"	"	"	1W01	
2686	"	HII 2908	3 48 51	+24 57	14.0		"	8:51	9:56	65m	OK	2	"	"			10	"	"	"	"	2W12	

CHARLES R. KADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, 0010660

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1966	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2687a	RPK	CP Pup	08 10 24	-35 14	15	SdBc	Jan 18/19	10:53	11:43	50m	OK	1-2	He 30	+30			12	63B / 8°00'	3"	6.85	IIa-0 baked	0E22	(Continuously trailed, wide first.)
b	"	"	"	"	"	"	"	18:43	12:28	45m	OK	2					"	"	"	"	"	0W23	20"/hr S. −15°/hr S.)
c	"	"	"	"	"	"	"	12:29	13:10	41m	OK	1-2					"	"	"	"	"	1W05	
2688a	"	"	"	"	"	"	"	13:19	13:54	35m	OK	2	He 30	+30			"	"	"	"	"	1W50	
b	"	"	"	"	"	"	"	13:55	14:21	26m	X1.5	2					"	"	"	"	"	2W17	
2689	"	EX Hya	12 50 27	-29 03	13.5	"	"	14:53	15:08	15m	OK	1-2	He 30				"	"	"	"	"	1E37	stopped by fog!
N2690	Sc	4C 15.1	00 04 13	+15 56			Jan 20	6:38	8:38	120		2	He 15+10	He 15+10			13	48B / 4°30	3"	6.85	IIaD thd	4W25	Base 270°
91	"	3C 204	08 34 44	+65 21			"	9:00	13:00	240		2	8+8	8+8			"	"	"	"	IIaD thd	0W39	" 90°
92	"	3C 270.1	12 18 53	+33 54			"	13:33	17:23	230		2	8+8	8+8			"	"	"	"	"	1W19	" 90°
93	"	4C 5.7	01 45 01	−05 48			Jan 21	6:30	9:00	150		2-3	8+8	8+8			"	"	"	"	"	3W31	" 270°
94	"	Hazard 0952+18	09 53 05	+17 53			"	9:19	10:49	90		2-3	8+8	8+8			"	"	"	"	"	2E47	" 270°
95	"	1116+12	11 17 11	+12 46			"	11:21	17:21	360		2-3	8+8	8+8			11	"	"	"	"	2W22	" 270°
96	"	4C 5.6	01 36 25	−05 39			Jan 22	6:38	8:58	140		2-1	8+8	8+8			13	"	"	"	"	3W32	" 270°
97	"	3C 247	10 57 03	+43 12			"	9:23	17:23	480		1-3	8+8	8+8			"	"	"	"	"	2W48	" 90°
98	"	3C 207	08 38 55	+13 20			Jan 23	7:25	9:55	150		2-3	8+8	8+8			"	"	"	"	"	2E49	" 270°
99	"	3C 216	09 07 20	+43 02			"	10:18	13:18	180		2-3	10+10	10+10			11	"	"	"	"	0W37	" 90°
N2700	"	3C 275.1	12 42 16	+18 34			"	13:41	17:21	220		2-3	8+8	8+8			13	"	"	"	"	1W05	" 270°
2701	"	M03-19	3 49 54	−14 35			Feb 11	6:43	9:13	150		1-2	12+12	12+12			13	"	"	"	IIaD thd	3W32	" 270°
02	"	3C 204	8 34 44	+65 21			"	9:35	12:35	180		2-3	8+8	8+8			"	"	"	"	IIaD thd, ff 3s	1W41	" 90°
03	"	3C 277.1	12 50 58	+56 45			"	12:58	14:00	62		3	8+8	8+8			9	"	"	"	IIaD thd	0E50	" 90° Mon.
04	"	1217+02	12 18 28	+02 15			"	15:03	16:03	60		2-3	12+12	12+12			"	"	"	"	IIaD thd	1W32	" 270° " "
05	"	3C 263	11 38 03	+65 59			"	16:17	16:57	40		2	12+12	12+12			"	"	"	"	"	3W00	" 90° " "
06	"	M03-19	3 49 54	−14 35			Feb 12	6:35	9:05	150		1	12+12	12+12			13	"	"	"	"	2W59	" 270°
07	"	H 0952+18	9 53 05	+17 53			"	11:10	14:27	197		1	8+8	8+8			"	"	"	"	IIaD thd, ff 2½s	2W49	" 270° stopped by wind
08	"	0922+14	9 23 16	+14 53			Feb 13	6:43	10:13	210		2	8+8	8+8			"	"	"	"	"	1E23	" 270°
09	"	1116+12	11 17 11	+12 46			"	10:33	16:20	330		2-3	8+8	8+8			"	"	"	"	"	2W52	" 270°
2710	"	3C 232	9 52 21	+32 34			"	16:34	17:04	30		2	12+12	12+12			"	"	"	"	IIaD thd	4W53	" 270°
2711	AS	PHL 1049	1 33 27	+7 49			Feb 14/15	6:51	8:21	90		2-1	12+12	3+3			"	"	"	"	"	4W40	
12	"	3C 192	8 03 39	+24 16			"	8:43	9:28	45m		2	12+12	3+3			"	"	"	"	"	0E44	
13	"	3C 223	9 37 56	+36 03			"	9:49	12:19	150		3-4	"	"			"	"	"	"	"	0W35	
14	"	3C 223.1	9 39 24	+39 54			"	12:41	13:51	70		3-4	"	"			"	"	"	"	"	2W03	
15	"	3C 287.1	13 31 14	+2 11			"	14:14	16:29	135		3	"	"			"	"	"	"	"	0W50	
16	"	R48	13 41 20	+26 08			"	16:47	17:27	40m		4	"	"			"	"	"	"	"	1W39	
17	"	3C 89	3 32 38	−1 17			Feb 15/16	7:07	10:07	180		1	"	"			"	"	"	"	"	4W30	
18	"	3C 197.1	8 19 16	+47 09			"	10:40	13:10	150		1	"	"			"	"	"	"	"	3W08	
19	"	3C 236	10 04 09	+35 04			"	13:28	14:38	70		1	"	"			"	"	"	"	"	2W34	
2720	"	3C 285	13 19 55	42 46			"	15:08	17:23	135		1-1	"	"			"	"	"	"	"	1W00	

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE FEB66	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
2721	ARP	ATLAS #145	2/21/06	+41/13		abs	16	7:11	8:41	90m	✓	4	He Ne	15 20 x2			12	988 4°30'	3"	6.85	IIa-D bkd.	4W30	base 104.2
22	"	#55	9/13/51	+44/28/30		abs+em	"	9:03	10:33	90m	✓	4	"	"			"	"	"	"	"	0E41	base 236
23	"	#142	9/36/05	+2/55/10		abs	"	10:49	11:49	60m	✓	"	"	"			"	"	"	"	"	0W13	166
24	"	#197	11/29/21	+20/39/50		abs.	"	12:09	13:39	90m	✓	"	"	"			"	"	"	"	"	0W10	293.1
25	"	#139	13/15/48	+26/55		abs	"	14:02	15:32	90m	✓	"	"	"			"	"	"	"	"	0W26	239
26	"	#125	16/37/15	+41/59/50		abs.	"	15:45	17:15	90m	120m	"	"	"			"	"	"	"	"	1E21	186.2
2727	ARP	NGC 918	2/24/04	+18/21/45		?	17	7:06	9:06	120m	180+	3	He 8 Ne 3	x2			16	"	"	"	103a-F	4W46	25°
28	"	Arp #141	7/10/22	+73/32/45		abs.	"	9:25	10:55	90m	✓	"	He 15 Ne 5	x2			12	"	"	"	IIa-D bkd	1W49	0.2
29	"	#160	12/2/41	+54/42/25		abs+em	"	11:14	12:44	90m	[illegible]	"	"				"	"	"	"	"	1E24	153.2
30	"	Comp M51	13/28/48	+47/26/40		abs.	"	13:48	15:52	124m	+	"	"				"	"	"	"	103a-F	0W29	238° thin clouds
2731	Z	Double Comp. Galaxy	05-15-12	+60°10'	15		18. II.	6:58	8:08	70	100	1-2	He 25	N 3 x			12	98B 4°30'	3"	6.85	103a-F	1W0	208°
32	"	Supernova NGC3974	05-15-12 09-56-42	+35°38'	16.5		"	8:42	10:42	120	150	2-3	"	"			"	"	"	"	"	1E08	215.5°
33	"	3C 273	12-26-33	+02°19'42"			"	0:25	4:25	240m	300	2-3	He 12	Ne 1			14	"	"	"	"	2W06	219° (JeL)
34	"	Double Compact Galaxy	05-05-12	+00°36'			19. II.	7:00	9:00	120m	✓	3-4	"	"			"	"	"	"	"	2W05	285.5°
35	"	Supernova Rocino	09-11-36	+47°07'			"	9:28	10:43	75m	100	3	"	"			13	"	"	"	"	0E18	163.5°
36	"	3C 273	12-26-33	+02°19'42"			"	11:42	4:42	300m	400	2-	"	"			14.5	"	"	-	"	2W27	220° (JeL)
37	"	Double Compact Gal.	0-15-12	+00°10'			20. II.	6:53	8:53	120m	✓	1+	"	"			12	"	"	"	"	1W32	208°
38	"	Compact Galaxy	6-00-24	+7°50'			"	9:15	10:45	90m	✓	1-2	"	"			14	"	"	"	"	2W59	270°
39	"	Supernova NGC 4686	12-45-18	+4°36'			"	0:35	2:05	90m	✓	1	"	"			"	"	"	"	"	0E26	218.5°
2740	Z	Double Galaxy	08-59-42	+28°03'			18/19. III.	7:36	8:41	65m	✓	2-3	He 14 (2)	Ne 1 (3)			13	"	"	"	"	0E22	Base 253° Clouds.
41	"	3C 273	12-26-33	+02°19'42"			"	10:19	1:19	180m	300	3-4	He 13-11	Ne 1 (3)			15	"	"	"	"	0W50	" 223° " (JeL)
42	"	Double Galaxy	13-51-54	+33°50'			"	2:31	3:30	59m	✓	3	He 16 (2)	Ne 1 (2)			11	"	"	"	"	1W37	" 348° "
43	"	Double Galaxy	08-59-42	+26°03'			19. III.	7:15	8:15	60m	90	1+	He 9 + 8				13	30° 3'30"	"	"	IIa-O	0E43	" 253° Very cloudy
44	"	3C 273	12-26-33	+2°19'42"			"	9:37	0:07	150m	300	2	"				15	30° 3'30"	"	"	"	0E18	" 223° Very cloudy.
45	"	3C 273	12-26-33	+2°19'42"			20. III.	8:57	2:57	360m	✓	1-3	He 12-11	Ne 1-1			14	40° 3'0"	"	"	103a-F	2W37	" 223°
2746	Arp	Atlas #142 Std shell ellipt	9/36/01	2/56/40 (1951)		—	21 MARCH	7:42	8:12	30m	✓	1-2	(He 10 - Ne 5)	x2			13	40° 3'0"	9"	6.85	IIa-D baked		base 145°
			"	"			"	"	8:12	9:42	90m	180	"				"	"	"	"	"	0W16	"
47	"	NGC 5223	13/32/59	+34/51/45 (1950)		abs.	"	10:19	11:54	95m	✓	3	"				10	"	"	"	"	1E29	238°.7 shd thru Lagunes #, mask
48	Arp	Sp. w comp. *	13/11/30	+27/19/15	"	abs.	22 March	10:24	10:54	30m	✓												
		ast	"	"	"	?		10:54	12:54	90m	100m	2	(Ne 10 + Ne 2)	x2			10	"	"	"	"	0E53	210°.5 dobber 2 comp. #30m
49	"	NGC H795+96	12/53/07	+08/15/35	"		"	12:39	14:09	90m			"				"	"	"	"	"	1W32	265° Clouds dobber 2 set 90m
50	"	Atlas #111	14/40/20	+33/57/00	"	-	"	14:25	15:54	89m			"				"	"	"	4	"	2W09	334° clouds.
N2751	Sc	3C 232	9 56 21	+32 34 (1966)			March 24	12:10	13:27	77m		1-2	He 10+2 He 25+15 A 20	Ne 20+10 Ne 15 +20	W1	75m	15	98B 4°30'	3"	6.85	103aF (H.2½")	3W53	Base 270°; Stopped by fog.
52	SBb	G 191 B2A	5 02 46	+52 46	11.0	dM	March 27/28	7 17	7 24	7		1	He, Ne		"		8	Blu 1	3"	6.85	IIa O Bkd	2W46	ΔI Moon Bright
53	"	G 191 B2B	5 02 46	+52 46	11.5	DA	"	7 29	7 39	10		1	He, Ne A		"		11	15° 15'	"	"	"	3W10	ΔI "
54	"	G 175-34 A	4 28 10	+58 56	12.7	DC	"	7 48	8 08	20		1	He Ne A		"		"	"	"	"	"	4W13	ΔI "
55	"	G 175-34 B	4 28 22	+58 56	12.7	dM	"	8 13	8 34	21		1	He Ne		"		"	"	"	"	"	4W34	ΔI "
56	"	GD 71	5 50 28	+15 53	12.8		"	8 48	9 18	30		1	"		"		"	"	"	"	"	4W02	ΔI "
57	"	GD 113	10 04 23	+01 03	12.6	Ap	"	9 31	9 48	17		2	"		"		"	"	"	"	"	0W17	ΔL No moon
58	"	G 163 B9A	10 44 28	-03 29	12.0		"	10 01	10 16	15		1	"		"		"	"	"	"	"	0W04	Δ I

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NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1966	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2759	JLG	G 148-6	11 44 12	+32 01	15.7	c M	March 27/28	10 41	12 16	95		2			W2	75m	8	63 B 8° 15	3"	6.85	IIa-0 Bkd	1h 15m	DI No moon
N2760	"	G 148-7	11 44 13	+32 01	13.7	DA	"	12 37	12 58	21		1-2			"	"	8		3"	6.85	"	1h 98m	Δ I
61	"	H Z 42	13 11 34	+31 33	14.4	A	"	13 15	13 35	40		2			"	"	8		3"	6.85	"	1h 32m	Δ I
62	"	G 165 B5 B	13 55 37	+33 58	16.3	DA	"	14 09	14 59	50		2			"	"			1.4"	6.22	"	1h 40m	Δ I
63	"	Ton 6.32	12 38 48	+30 14	16.4	Fb	"	15 22	16 02	40		1			"	"			1.4"	6.22	"	3h 53m	DI
64	"	GD 190	15 42 48	+18 13	14.5	DB	"	16 16	16 46	30		2			"	"			3"	6.85	"	1h 37m	DI
N2765	ARP	c.g. Sq M87	12 29 20	+12 24 05	14	abs.	11 April	13 06	14 36	90m	30	1					12	9 B 4°	3"	6.85	103a-F	2h 40m	base 0° star Arp nucleus g.k. } 1/4
66	"	gal w st. comp	15 12 47	+25 50	16	abs	"	14 58	16 00	62m	✓	2										2h 30m	base 359° ∞ app. both 2. ab ap. } moon
2767	"	blue e.g. Sq N87	12 29 21	+12 28 10	12?	?	12 April	11 42	12 02	20m	6m	3	(He 10 He 5)2								IIa-0 bkd	1h 09m	base 0°
68	"	S w comp	13 11 28	+27 19 25	15	?	"	12 15	14 15	120m	120m	3	(A 15 He 10)2								"	2h 40m	base 32.1 35m g 1/4 moon
69	"	Atlas #117	14 08 30	+17 42 35	13	abs.	"	15 08	16 08	60m	✓	3	(He 5 Ne 5)2								103a-F	3h 37m	base 78.8 ½ moon
2770	"	shred nr. Atlas #142	4 36 01	+2 56 45	18	eur	13 April	7 48	10 18	150m	✓	4	(A 15 He 10)2								IIa-0 bkd	2h 23m	base 153.4 star S edge gobbled
71	"	Atlas #192	10 35 16	+18 19 20	17	emiss	"	10 33	11 33	60m	✓	5	"								"	2h 39m	" 302.8
72	"	Red fan #2	11 13 08	+55 08 55	16	eta	"	11 52	12 32	30m	10m	5	"								"	3h 00m	0°
73	"	Red fan #1	11 43 09	+58 03 45	16	eta	"	12 49	13 34	45m	15m	5	(He 10 Ne 5)2								103a-F	3h 32m	0°
74	"	c.g. Sq M87	12 29 22	+12 28 00	12	eta	"	13 46	14 16	30m	30m	5	"								"	3h 27m	0°
75	"	Atlas # 178	14 22 48	+35 01 00	13+15	eta	"	14 32	16 02	90m		5	"								"	3h 20m	328.8 H.D. needs wide eff.
2776	"	uv bint NGC 3631	11 19 25	+53 21 05	4/8	eta	14 April	7 48	9 48	120m		3	"								"	0h 13m	base 90° obl E W
77	"	red fan #2	11 13 10	+55 09 10	14	a	"	9 59	10 44	45m		3-4	"								"	1h 5m	base 90°
78	"	c.g. Sq M87	12 29 22	+12 28 00	12	a	"	10 54	11 09	15m		4	"								"	0h 23m	278
N2779	Sc	3C 232	9 56 21	+32 34			Apr. 22	7:40	8:40	60m		3-2	He 15+15	Ne 15+15			9	48 B 4° 30'	3"	6.85	103a F, Hyp 2½	1h 0m	Base 270°
80	"	3C 273 jet	12 27 23	+2 14			"	9:09	14 07	322		1-2	10+10	10+10			15	"	"	"	IIa D bkd	3h 58m	" 225°
81	"	3C 309.1	14 58 58	+71 48			"	14:30	15:45	75		2	"	"			13	"	"	"	"	3h 19m	" 90°
82	"	3C 232	9 56 21	+32 34			Apr 23	7:46	8:46	60		2-3	"	"			11	"	"	"	"	1h 10m	" 270°
83	"	3C 273 jet	12 27 23	+2 14			"	9:16	14:16	300		2	2+2	2+2			17	"	1½"	6.3	IIa D bkd	4h 09m	" 225°
84	"	3C 323.1	15 46 14	+20 59			"	14 41	15:41	60		3	10+10	10+10			11	"	3"	6.85	IIa D bkd	2h 16m	" 270°
85	"	3C 232	9 56 21	+32 34			Apr 24	9:39	10 39	180		3	15+15	15+15			11	"	"	"	103a F, Hyp 2½	3h 05m	" 270°, 4d Moon
86	"	3C 268.4	12 07 31	+43 51			"	11 01	15 21	280		3	10+10	10+10			11	"	"	"	IIa D bkd	5h 37m	" 90°
87	"	Stein galaxy	12 07 49	+43 53			"	15:32	15:52	20		3	10	10			11	"	"	"	IIa D bkd	6h 09m	" 90°
88	"	3C 232	9 56 21	+32 34			Apr 25	8:03	10:03	120		2-3	10+10	10+10			11	"	"	"	IIa D bkd	2h 28m	" 270° 5d Moon
89	"	3C 288.1	13 41 11	+60 32			"	10 29	13:31	182		3	"	"			11	"	"	"	"	2h 19m	" 90°
90	"	3C 289	13 44 07	+49 57			"	13:43	15:43	120		3	"	"			11	"	"	"	"	1h 28m	" 90°
N2791	ARP	SNT	13 28 47	+31 43 30	14	a	11 May	13:25	13:45	20m		3	(10+5)	He+Ne			11	9 B 4° 30'	3¼"	6.85	IIa-0 bkd.	3h 48m	Base 270° could not see on slit 73° after moon rose
92	"	Sc kit 3C 343 A&B	16 37 14	+62 49 50	Esh	—	"	14:05	15:20	75m		3					"	"	"	"	"	2h 15m	
93	"	Red Fan #2	11 12 15	+55 10 40	m sh	e	12 May	8:21	9:36	75m		3-4	"				15	"	"	"	"	1h 58m	Base 21° star just grazed slit
N2794	JLG	G 115-58	9 07 27	+46 35	12.5	dG	May 16	8 00	8 13	13	✓	3	He 25+25	Ne 25+25	W1	75m	8	BL 1 15 0 15	3"	6.90	IIa-0 Bkd	2h 58m	some dust
95	"	G 116-57	9 47 00	+41 01	13.0	"	"	8 20	8 37	17	15	2	"	"	W1		"	"	"	"	"	2h 40m	"
96	"	GD 108	9 58 18	-07 19	13.4	sdB	"	8 49	9 15	26	✓	4	"	"	W1		"	"	"	"	"	3h 06m	"
97	"	GD 153	12 54 35	+22 18	13.1	DC:	"	9 30	9 53	23	15	4	"	"	W1		"	"	"	"	"	0h 49m	star a little out of slit. Very blue
98	"	G 177-31	13 17 04	+45 20	13.9	DA	"	10 05	10 48	43		3	"	"	W2	75m	"	"	"	"	"	1h 21m	

correcting to 1966 positions from disk
−5s −45" R.A. dec.

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N																							
N2799	JLG	+28°2229A	13 37 12	+28 04	10.9	G	May 16	11^06	11^05	90^m		3	He Ne 50		Lo 2	75^cm	8	BLI +5=15	3^H	6.90	IIa-O Bkd	1^H34	Three exposures. Close Pair
2800	"	+28°2229B	"	"	16.0?	?	"	11^29	12^48	79		4	85+85		Lo 2		14	16=15	1.4	6.15	"	3^H32	Possibly contaminated by 14
2801	"	GD 198	16 12 19.30 38	-11 11	15.4	DB	"	13^58	13^41	23	28	3	"		W 2		14	63B 8=15	1.4	6.15	"	1^H18	
2802	"	G153-40	16 14 41	-12 50	15.1	DA	"	13^36	14^21	25	20	3	"		W 2		14	"	"	"	"	1^H37	
2803	JLG	G47-18	8 56 11	+33 09	15.2	DA	May 17	8^09	9^12	71	✓	2	He Ne 15+15		W 1	75^cm	8	63B 8=15	3^H	6.90	IIa-O Bkd	4^H40	
04	"	HZ 26	12 26 18	+28 38	13.8	B	"	9^30	9^57	21		2	"		W 1		8	"	"	"	IIa-O Neo	1^H18	
05	"	Ton 634	12 38 36	+28 35	15.7		"	10^15	10^44	29		2	10+10		W 1		14	"	1.9	6.15	"	2^H30	Some doubt about identification. Westerly of pair
06	"	Ton 610	12 20 42	+23 27	15.6		"	10^52	11^20	28		3	"		W 1		14	"	"	"	"	2^H53	DA-m
07	"	G138-56	16 39 20	+15 18	16.1	DAs	"	11^33	12^29	56	45	3	"		W 2	75^cm	14	63B 8=15	"	"	"	0^H03	
08	"	G181-B5B	17 06 58	+33 17	16.2	DA	"	13^05	13^54	49	✓	3	"		W 2		14	"	"	"	"	0^H42	
09	"	LP 9-231	17 54 41 1966 0.15	+82 45 30	14.9	DAs	"	14^25	15^24	59	✓	3	15+15		W 2		8	"	3^H	6.90	"	1^H25	
2810	JLG	GD 105	9 52 39 66	+33 12 39	15.8	sdK	May 18	8^55	9^06	61	✓	1	He Ne 15+15		W 1		14	BLI 10=15	14	6.15	IIa-O Blue	3^H15	Sky Bright!
11	"	G43-38	10 12 26	+8 21	16.6	DF?	"	9^33	10^40	67	✓	2	8+8		W 1	75^cm	14	63B 8=15	"	"	"	4^H26	" " Hg lines from city?
12	"	Ton 610	12 20 42	+23 27	15.6	DAm	"	10^53	12^12	79	✓	3	15+15		W 2		8	"	3	6.90	"	3^H50	Poor plate
13	"	GD 175	15 03 10	-07 03	16.3	DC?	"	12^36	13^36	60	✓	3	8+8		W 2	75^cm	14	"	1.4	6.15	"	2^H31	
14	"	GD 178	15 09 25	+32 15	14.2	DA	"	13^06	14^44	38	✓	3	15+15		W 2		8	"	3.	6.90	"	3^H13	
15	"	G169-39	16 55 01	+21 30	14.3	DAs	"	14^33	15^05	32	✓	3	"		W 2		"	"	"	"	"	2^H10	
16	"	GD 228	20 05 01	+05 44	14.0	sdG	"	15^16	15^37	21	✓	4	"		W 2		"	"	"	"	"	0^H29	Dawn
2817	JLG	Ton 610	12 20 42	+23 27	15.6	DAm	May 19	10^42	12^12	90	120	1	He, Ne 15+15		W 1	75^cm	8	63B 8=15	3	6.90	IIa-O Bkd	3^H53	Clouds. Bright sky
18	"	+6°2932B	14 40 54	+06 02	≈14	dKBF	"	12^35	12^59	24	40	2	"		W 1		11	"	"	"	"	2^H19	" some Contamination
19	"	G17-34	16 42 32	+06 06	11.6	dKp	"	13^15	13^20	5	✓	2	"		W 1		"	"	"	"	"	0^H40	DZ "
2820	"	LP 9-231	17 54 41 66	+82 46	14.9	DAs	"	13^44	15^15	86	✓	2	"		W 1		"	"	"	"	"	1^H23	"
2821	Z	Stars 1 & 2 Blue	12-26-33	+2° 21'	13.0 14.0		May 20	8^05	9^35	90^m	✓	2+	He Ne 1+1 1+1				10	98B 4=30	3^H	6.90	IIIa-F	1^H14	Clouds, Bright sky. near 3C 273
22	"	Compact galaxy + star	13-14	+54° 55'			"	10^34	10^50	16^m	✓	2+	"				"	"	"	"	"	1^H42	
23	"	Pair of Pygmy stars	16-33-24	+57° 15'			" 21	0^24	1^59	90^m	✓	2	10+10 1+1				9		"	"	"	1^H37	LP 101-15/16 Base 270°
24	"	3C 371	18-07-10	+69°48'43"			"	2^34	3^24	50^m	✓	2	9+9 1+1				13		"	"	"	1^H25	
25	"	Blue star 3 near 3C 273	12-26-33	+ 2° 29'	13.0		" 21/22	8^02	10^02	120^m	200^s	2	10+10 1+1				10		"	"	"	2^H15	Base 170°
26	"	Compact galaxy	14-10	+ 46° 57'	15.0		"	10^24	11^21	57^m	120^m	"	" "				10	30B 4=30	"	"	IIa-O	1^H11	" 180°
27	"	Double Pygmy star	16-33-24	+57° 15'	15-16		"	0^37	1^07	30^m	✓	2	"				8	"	"	"	"	0^H44	" 270° LP 101-15/16
28	"	Compact galaxy	17-39	+47° 46'	16		"	1^10	1^25	65 min	✓	2	8+8				12	"	"	"	"	0^H58	" 180°
29	"	Star 3 near 3C 273	12-26-33	+2° 29'			" 22/23	8^00	10^30	150 min	✓	2-3	"				11	"	"	"	"	2^H18	" 170°
2830	"	Compact galaxy	14-22-30	+50° 48'			"	10^50	11^50	60^m	✓	2-3	6+6				12	"	"	"	"	1^H57	" 90°
31	"	" "	17-50 36	+49° 2'			"	1^34	2^54	80^m	✓	3	6+6				12	"	"	"	"	1^H19	" 180°

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1966	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 2832	Z	Double Galaxy	11-53.0	+80°31'		Em.	14. VI.	8:38	9:38	60m	✓	1-2	He 8+8				12	98B 30°36'	7"	6.9	IIa-O	3W29	Base 348° Integ. Bridge
33	"	object Richter	13-42.5	+28°52'		F	"	10:04	10:14	10m	✓	2-3	" 10+10				9	"	"	"	"	2W16	" 270°
34	"	Star + Compact Galaxy	17-24.2	+45°41'			"	10:44	0:14	90m	✓	3	" 8+8				11	"	"	"	"	0W35	" 180°
35	"	Compact Galaxy	22-51-06	+31°23'			"	1:44	2:58	74m	✓	3	" "				11	"	"	"	"	2E03	" 270° Clouds.
36	"	" "	12-33-42	+81°53'			15. VI.	8:41	10:41	120m	✓	1-2	" 6+6				13	"	"	"	"	3W56	" 180°
37	"	Double Galaxy	17-49-18	+56°41'			"	10:58	11:58	60m	✓	2-3	" 6+6				13	"	"	"	"	0E02	" 50°
38	"	Compact "	21-31-48	+8°27'			"	1:06	2:36	90m	✓	2-3	" 6+6				13	"	"	"	"	1E07	" 180°
39	"	Compact "	13-34-54	+45°31'			16. VI.	8:32	9:58	86m	✓	1-	" 6+6				13	"	"	"	"	2W15	" 90°
2840	"	Compact "	17-49-00	+57°00			"	10:17	11:47	90m	✓	1-	" 6+6				"	"	"	"	"	0E10	" 90°
41	"	" "	21-45-54	+26°13'			"	1:42	3:00	78m	✓	2	" 6+6				"	"	"	"	"	0E54	" 180°
N 2842	Sc	3C 273	12 27 23	+ 2 14			June 17	8:45	9:38	53m		2	He 10+10 Ne 10+10				9	98 4°30	3"	6.85	IIaD	3W09	Base 270°.
43	"	CTD 93	16 07 49	+26 47			"	10:25	11:56	91		2	He 10+10 Ne 10+10				9	"	"	"	IIaD bkd	1W46	" " .
44	"	4C 29.50	17 02 50	+29 50			"	12:38	15:00	142		1-2	He 5+5 Ne 5+5				15	"	"	"	IIaD bkd	3W52	" " .
45	"	4C 22.38	13 25 17	+22 53			June 19	8:55	11:55	180		2	He 5+5 Ne 5+5				15	"	"	"	"	4W35	" " .
46	"	3C 435.1	21 32 53	+83 50			"	12:14	14:00	106		2-3	He 10+10 Ne 10+10				13	"	"	"	IIaD bkd	1E27	" 90° .
2847	"	3C 454.3	22 52 18	+15 58			"	14:13	14:58	45		2	He 10+10 Ne 10+10				13	"	"	"	"	1E48	" 270° .
2848	ARS	LP101-15	16 33 42	+57 13	13.0	dM3	July 12/13	8:25	8:50	25	100	3	He 25+25				9	BL1 16 15	3"	"	IIaC bkd	0E09	W2 fully widened
49	"	XF1	16 17 58	-15 33	12.9		"	9:10	9:53	43	✓	2	"				9	"	"	"	"	1W10	Rate 45 sec arc/hr 9:16-9:18 Continuously single trail. Time Mark
50	"	LP101-16	16 33 42	+57 13	15.0	dC	"	10:16	11:44	88	✓	3	He 15+10				11	63B 8°00	"	"	"	2W46	W2. Fully widened
51	"	XF1	16 17 58	-15 33	12.9		"	12:03	12:41	38	✓	8	He 25+25				11	BL1 15 15	"	"	"	4W00	Many trails. W1.
52	"	LP101-15	16 33 42	+57 13	13.0	dM3	"	12:55	13:34	39	✓	3	He 25+25				11	"	"	"	"	4W36	Rate 100 sec arc/hr. slow.
53	"	3C446	22 24 10	-05 07	15.2	gSS	"	14:08	15:18	70	✓	2	He 15+10				11	63B 8°00	"	"	"	0W30	Much moon!
2854	"	XF1	16 17 58	-15 33	12.9		July 13/14	8:19	9:01	42	✓	1	He 25+25				11	BL1 15 15	"	"	"	0W22	Continuously single trailed 45 sec/hr.
55	"	LP101-16	16 33 42	+57 13	15.0	dC	"	9:19	11:42	143	✓	2-3	He 15+15				11	63B 8°00	"	"	103aJ	2W47	Fully widened over W1.
56	"	XF1	16 17 58	-15 33	12.9		"	11:59	12:29	30	✓	2	He 25+25				11	BL1 15 15	"	"	IIaO bkd	3W51	W1 Many trails
57	"	LP101-15	16 33 42	+57 13	13.0	dM3	"	12:40	13:22	42	✓	2	He 25+25				11	"	"	"	"	4W28	W1 Minimum a about 13:00
58	"	3C446	22 24 10	-05 07	15.2	gSS	"	13:44	15:25	101	✓	2	He 15+10				11	63B 8°00	"	"	"	0W41	Slight moon
2859	"	XF1	16 17 58	-15 33	12.9		July 14/15	8:21	9:38	77	✓	3	He 25+25				9	BL1 15 15	"	"	"	1W13	Single trail W2. Time mark 8:33-8:34
60	"	LP101-15	16 33 42	+57 13	13.0	dM3	"	9:48	10:24	36	✓	2	"				9	"	"	"	"	1W33	W1
61	"	XF1	16 17 58	-15 33	12.9		"	10:35	12:10	95	✓	1	"				9	"	"	"	"	3W35	Single trail W2
62	"	3C446	22 24 10	-05 07	15.2	gSS	"	12:30	14:38	128	✓	3	He 10+15				11	63B 8°00	"	"	"	0E02	Rate 100 sec/hr slow. W2
63	"	3C449	22 30 07	+39 11	13.5	gal	"	15:04	15:25	21	40	3	He 8 15 Ne 3+3				14	"	1.4	6.35	IIaD bkd	0W40	
2864	"	LP101-15	16 33 42	+57 13	13.0	dM3	July 15/16	8:20	9:12	52	✓	2	He 25+25				9	BL1 16 15	3"	6.85	IIaO bkd	0W23	
65	"	XF1	16 17 58	-15 33	12.9		"	9:21	12:21	180	✓	3-2	"				9	"	"	"	"	3W50	Continuously trailed. W3 Time mark 11:03 to 1/2 minute
66	"	3C381	18 33 24	+47 25	17.5	gal	"	13:05	15:20	135		3	He 8+8 Ne 5+5				15	63B 8°00	1.4	6.35	IIaD bkd	4W35	
2867	"	LP101-15	16 33 42	+57 13	13.0	dM3	July 16/17	8:14	8:59	45	✓	3	He 25+25				9	BL1 16 15	3"	6.35	IIaO bkd	0W15	Mistake on focus
68	"	XF1	16 17 58	-15 33	12.9		"	9:10	12:27	197	✓	3-2	"				9	"	"	"	"	4W00	" " . Time Mark 9:40-42 10:11-13
																							Rate studied at 10:40-42 35 sec/hr slow & uniform 11:10-11:12 to 100 sec/hr as refraction 11:40-11:42 began. 12:10-12:12

CHARLES B. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, ORIZABA

1966

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1966	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H.A. END	REMARKS
N 2869	ARS	3C 357	17 27 27	+31 47			July 6/7	13:05	15:20	135		2	He 8+8, Ne 5+5				15	63B 8°00	1.4	6.35	IIaD bkd	5ʰ48	Stationary on slit
2870	"	XF1	16 17 58	−15 33			July 7/8	8:18	11:18	180	✓	2-3	He 25+25				9	BL1 15 15	3"	6.85	IIaO "	2ʰ55	Time mark 8:48-8:50 9:48-9:50 10:48-10:50
71	"	LP101-15	16 33 42	+57 13			"	11:29	12:05	34	✓	2	" "				9	"	"	"	" "	3ʰ26	Time mark 9:18-9:20 10:18-10:20
72	"	3C 403.1	19 50 55	−1 25			"	12:51	15:27	156		2	He 8+8, Ne 5+5				14	63B 8°00	1.4	6.35	IIaD "	3ʰ32	W1
N 2873	"	LP101-15	16 33 42	+57 13			July 25/26	11:57	12:47	50	?	2	He 25+25				11	BL1 15°15	3"	6.95	IIaO bkd	4ʰ40	2 galaxies, one marked by Veron
74	"	"	"	"			"	12:59	14:53	114	✓	2	Ne 15+15, He 25+25				11	21 45	"	"	103aE	6ʰ47	
75	"	GC 25648	18 42 13	+59 33			"	15:28	15:30	2	✓	3	"		"		11	15 15	"	"	IIaO bkd	5ʰ07	} Standard dM4.
76	"	"	"	"			"	15:39	15:41	2	✓	"	"		"		11	BL 21 45	"	"	103aE	5ʰ25	
N 2877	SC	3C 435.1	21 32 53	+83 49			Aug 11	8:29	10:29	120		2	He + Ne 8+8				13	48B 4°30"	3"	6.85	IIaD bkd	1ᴱ30	Base 181°
77	"	3C 452.3	22 52 18	+75 58			"	10:59	13:59	180		2	"				13	"	"	"	IIaD bkd	0ᵂ41	" 270°
78	"	4C 0.6	00 57 15	−00 05			"	14:13	15:33	80		2-3	10+10				13	"	"	"	"	0ᵂ09	" 270°
80	"	3C 429.1	21 04 21	+17 25			Aug 12	8:15	10:30	135		2-3	8+8				9	"	"	"	IIaD bkd	0ᴱ57	" 90°
81	"	3C 446	22 24 03	−05 07			"	10:51	12:21	90		3	15+15				9	"	"	"	IIaD bkd	0ᴱ25	" 270°
82	"	3C 435	21 27 27	+07 24			"	12:56	15:41	165		4	8+8				9	"	"	"	IIaO bkd	3ᵂ52	" 270°
83	"	3C 306.1	14 53 17	−04 13			Aug 13	7:58	8:58	60		2-3	8+8				9	"	"	"	"	3ᵂ45	" 270°
84	"	3C 341	16 28 40	+27 46			"	9:20	12:00	160		3	8+8				9	"	"	"	"	5ᵂ25	" 270°
85	"	3C 454.3	22 52 18	+75 58			"	12:26	12:56	30		4	10+10				7	"	"	"	"	0ᴱ14	" 180°
86	"	4C 0.6	00 57 15	−00 05			"	13:25	15:21	121		4	8+8				9	"	"	"	"	0ᵂ08	" 270°
87	"	MSH 20-21	20 54 07	−20 05			Aug 14	8:32	11:52	320		2-3	7+7				13	"	"	"	"	2ᵂ44	" 270°
2888	"	4C 1.4	1 38 15 1950	+1 21			"	14:21	15:41	80		2-3	15+15				13	"	"	"	IIaD bkd	0ᴱ10	" 270°
N 2889	JLG	G15-10	15 07 08	−04 33	13	sdG	Aug. 15	7:54	8:06	12	18	2	He 50+50 Ne 50+50		W1 - 100ˢᵉᶜ		9	BL1 16°20	3"	6.85	IIaO Bkd	2ʰ47	
90	"	GD 177	15 09 03	+07 26	13	HBF	"	8:17	8:32	15	22	2	"		"		9	"	"	"	"	3ʰ12	
91	"	M92 III-27	17 16 [illegible] 1966 - from Deals	+43 14 [illegible]	16.1	Bp	"	9:09	13:10	241	5hrs	3	He 10+10 Ne 40+40		"		11	"	"	"	"	5ʰ43	Sky Bright. No stellar contamination
92	"	GD 240	22 40 09	−04 30	16	DA4ok	"	13:29	14:29	60	✓	3	He 8+8 Ne 8+8		"		12	"	14	6.25	"	1ʰ38	
93	"	Ton S. 183	0 58 48	−34 00	12.4	Bp	"	14:45	14:56	11	16	3	He 60 Ne 60		"		8	"	3"	6.85	"	0ᴱ14	
94	"	Ton S. 191	1 04 24	−33 39	13.2	sdB	"	15:06	15:26	20	30	3	He 30+30 Ne 30+30		"		8	"	"	"	"	0ᵂ12	
95	"	Ton S. 201	1 09 42	−26 29	12.9	Bp	"	15:32	15:48	17	25	3	He " Ne "		"		8	"	"	"	"	0ᵂ28	
N 2896	JLG	M13 II-25	16 40 43 Dials	+36 38 [illegible]	15.9	Bp	Aug. 16	8:02	11:18	196	240	2	He 40+40 Ne 40+40		W1 - 100ˢᵉᶜ		9	BL1 16°20	3"	6.85	IIaO Bkd	4ʰ32	Crowded Field; Very Bright sky!!
97	"	GD 236	22 26 38	+06 07	15.5	DA	"	12:53	13:25	32	✓	3	He 5+5 Ne 5+5		"		13	"	14	6.25	"	0ᵂ51	clds. at end
98	"	GD 242	22 50 45	+23 42	12.0	Gp	"	13 32	13 41	9	6	4	He 50 Ne 50		"		9	"	3"	6.85	"	0ᵂ44	
99	"	GD 244	22 54 16	+12 37	16.0	DA	"	13 53	14 51	58	✓	3	He 10+10 Ne 10+10		"		13	"	14	6.25	"	1ʰ50	
N 2900	"	G157-37	23 13 14	−09 21	12.7	dM	"	15:00	15:11	11	7	4	He 60 Ne 60		"		8	"	3	6.85	"	1ʰ51	clouds
01	JLG	Ton N. 788	15 12 18	+24 21	12.8	sdB	Aug. 17	7:50	8:07	17	✓	2	He 25+25 Ne 25+25		W1 - 100ˢᵉᶜ		9	BL 16°20	3"	6.85	IIaO Bkd	2ʰ57	
02	"	Ton N. 245	15 38 24	+26 57	13.7	sdB	"	8:17	9:52	35	✓	2	"		"		9'	"	"	"	"	3ʰ10	
03	"	G125-59	20 03 07	+35 34	14.0	gKp	"	9:08	9:46	38	✓	1-2	"		"		9	"	"	"	"	0ᴱ21	
04	"	G186-31	20 32 40	+24 57	13.0	DA	"	9:58	10:07	11	?	1-2	"		"		9	"	"	"	"	0ᴱ32	= W 1346
05	"	M15 III-67	21 28 20	+11 59 66 Dials	15.9	Bp	"	10:29	14:29	240	✓	1-2	"		"		10	"	"	"	"	3ʰ00	Field clear, background bright. Sky bright
06	"	SN NGC 521, Reover	1 22 54	+01 34	15.5	SNI	"	14:50	15:20	30	✓	3	He 8+8 Ne 8+8		"		14	"	14	6.25	"	0ᴱ05	60" east, 15" north of nucleus
N 2907	JLG	M13, I-75	16 40 43	66 Dials +36 31	15.5	Bp	Aug 18	8:14	11:22	188	✓	2-1	He 25+25 Ne 25+25		W1 (100ˢᵉᶜ		10	BL 15°20	3"	6.85	IIaO Bkd	4ʰ42	Clouds; Possible contamination, companion @ 45°, 3", Δm = 1.

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, ADVANCED

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1966	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2908	ARP	shapeless 71	18/39/30	+01/59/01	14	A?	21-22 Aug	8:25	8:48	23m	35	2	He Ne	10 5 x2			9	988 40	3"	6.85	103a-F	0:00	trace Trailed E-W - N0 from net 270°
09	"	gxy #1 (elon)	22/46/57	+15/45/10	15	ast?	"	9:06	9:36	30m	45	"		"			"	"	"	"	"	3:50	"
10	"	gxy #1 (gxy)	22/46/58	+15/44/55	18:int	0 II	"	10:01	11:31	90m	fr sky	"		"			12	"	"	"	IIa-0 thd	1E03	2½ x 0.4m slit across gxy 222.2
11	"	Atlas #150	23/18/00	+09/20/10	16	A4K	"	11:48	12:48	60m	✓	"		"			"	"	"	"	"	0E16	E met NW end of slit 311.4
12	"	Atlas #127	00/37/27	-09/10/10	16	A4K	"	13:00	14:00	60m	✓	"		"			"	"	"	"	"	0E25	spindle mirror at end of slit 344.9
13	"	NGC 210 (knot)	00/39/00	-14/02/30	18	am	"	14:15	15:56	101m	✓	"		"			"	"	"	"	103a-F	1W25	slit along arm 350.9
14	JLG	M15 III-63	21 28 23 (66)	+11°59	16	B p	Aug 22/23	11:45	15:14	209m	✓	4-3	He 25+25 Ne 25+25		W2	100m	10	BL1 15°45	3"	6.85	IIa-0 B+d	4W07	
15	JLG	GD 239	22 35 46 (50)	+25 45	14.0	dG	Aug 24/25	12:26	13:04	38m	✓	3	He 15+15 Ne 25+25		W4	40m	8	BL1 15°45	3"	6.85	IIa-0 B+d	0W49	
16	"	GD 245	22 58 22	+25 00	13.5	DA	"	13:12	13:38	26m	✓	3	"		"		8	"				1W23	
17	"	-2°6378	23 09 54	-21 23	9.5	B3	"	13:45	13:48	3m	✓	3	"		"		8	"	"	"	"	1W50	window 2
18	"	GD 243	22 53 12	-06 17	15.5	DB	"	14:01	14:24	23m	✓	4	He 10+10 Ne 10+10		"		13	"	1.4	6.25	"	1W52	
19	"	G171-B10B	00 24 18	+38 54	16	a hz	"	14:31	15:01	27m	50	3	"		"		13	4	"	"	"	1W01	
2920	"	GD 11	1 06 34	+37 17	15.0	DA	"	15:16	15:46	30m	✓	5	"		"		13	"	"	"	"	1W00	
21	JLG	R193A	20 54 05	-05 02	13.3	dMe	Aug 25	12:24	12:54	30m	✓	2-3	He 25+25 Na "		W4	40m	8	BL1 15°45	3"	6.85	IIa-0 B+d	2W25	
22	"	R193B	20 54 05	-05 02	17.8	DC	"	13:09	15:05	126m	✓	2	He 4+4 Na 4+4		W4		14	98B 30°45	1.4	6.25	"	4W55	
2923	ARP	NGC 7266	22 20 58	-04/14	15	e/a	8-9 Sept 66	12:01	12:38	37m	—	5	Ne 10 Ne 5	x2			9	988 40°30	3"	6.85	103a-F		40% moon - stopped by clouds
24	"	* in neb	00 56 48	+15 28	14	a	"	13:06	13:11	5m	✓	5	"				"	"	"	"	"	0E22	trace 27° slither 1
25	"	SNT	23/06/32	+16/57	10	a	"	13:24	13:27	3m	✓	5	"				"	"	"	"	"	1W45	" 1
26	"	IC 1767	1/58/30	-11/12/40	14	a	"	13:43	14:43	60m	180	5	"				"	"	"	"	"	0W09	" " 2
27	"	Parkes Source	2/38/39	-23/17/24	18	—	"	15:00	16:00	60m	180	5	"				"	"	"	"	"	0W46	210.5 " 2
2928	"	SNT (*)	15/56/14	+51/36/06	15	a	9-10 Sept	7:30	7:50	20m	✓	4	"				11	"	"	"	IIa-0	3W22	98 1
29	"	Russ Bo's	17/25/30	+41/59	19.5	a	"	8:07	9:37	90m	✓	4	"				11	"	"	"	IIa-0	2W10	90° 1
30	"	NGC 7541	23/13/09	4/22/30	12.8	a	"	9:49	11:49	120m	180	4	"				11	"	"	"	103a-F	0W05	381.1 3
31	"	NGC 7266	22/22/26	-4/13/08	14	A+e	"	12:03	13:03	60m	✓	4	"				11	"	"	"	IIa-0	2W05	0° 2
32	"	NGC 7800	23/58/04	14/38/32	14	a+≡		13:21	14:21	60m	✓	4	"				11	"	"	"	IIa-0	1W52	233.2 3 slit along axis
33	"	Parkes Source	2/38/48	-23/15/44	18	—		14:59	15:59	60m	✓	5	"				11	"	"	"	IIa-0	0W49	310.5 2
2934	"	Russ Bo's	17/25/33	+41/57/20	19.5	a	10-11 Sept	7:51	9:51	120m	✓	2	"				9	"	"	"	IIa-D	3W57	295 1
35	"	NGC 7309	22/32/45	-10/30/19	15	a(A)	"	10:02	11:02	60m	✓	3	"				9	"	"	"	~~IIa-D~~ IIa-D	0W51	180° 3
36	"	gal bet rad s.	23/49/14	-2 00/54	15	a+e?	"	11:21	12:31	70m	✓	3	"				11	"	"	"	~~IIa-D~~ IIa-D	0W14	180° 1
37	"	Parkes Sources	2/38/44	-23/15/37	18	—	"	12:48	16:05	197m	✓	2	Ne 20 Ne 10	x2			11	638 80	"	"	IIa-D	0W59	180° 1
2938	"	g. bet 3C 343 A+B	16/37/06	62/48/52	17	?	11-12 Sept	7:58	10:05	135m	270	1-2	Ne 10 Ne 5	x2			11	988 40°30	"	"	IIa-D	4W54	74.8 3
39	"	* in neb	0/58/21	15/34/22	14	A+e	"	10:33	12:18	105m	270	2	"				11	"	"	"	103a-F	0E59	222.6 3 slit about 11 E of *
40	"	NGC 918 (m)	2/24/11	+18/23	14	—	"	12:42	16:05	203m	270	1-2	"				11	"	"	"	103a-F	1W18	205 3 * mark in end of slit
2941	"	g bet 3C 343 A+B	16/37/10	62/49/00	17	?	10-11 Sept	7:42	9:12	90m	✓	3	He 5 Ne 2	x2			16	"	1.4	6.25	IIa-0	4W14	350° 3
42	"	SNT (ext)	23/07/23	17/02/37	10	—	"	9:31	10:31	60m	✓	3	Ne 5 He 2	x2			16	"	"	"	"	0E56	175° 3 * N end of slit
43	"	* in neb	00/58/22	+15/34/30	14	a	"	10:55	11:15	20m	✓	3	He 20 Ne 10	x2			9	988 40°30	3"	6.85	103a-F	2E04	90° 3
44	"	"	"	"	"	"	"	11:23	11:29	6m	✓	3	"				"	"	"	6.85	"	1E51	" "
2945	"	SNT (ext)	15/56/30	+51/37/10	14	a	14-15 Sept	7:40	9:40	120m	✓	4	He 10 Ne 5	x2			13	988 H230°	3"	6.85	IIa-0	5W31	50° 3
46	"	SNT (ext)	23/07/23	+17/02/20	18	?	"	10:03	12:03	120m	✓	5	He 5 Ne 2	x2			17	"	1.4	6.20	IIa-0	0W24	170°
47	"	g. bet rad s.	00/57/50	-17/29/00	17	?	"	12:40	12:52	12m	60	4	"				17	"	"	"	"	0E13	280.5 stopped by fog

CHARLES R. RADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	1966 DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N2948	APP	SWT *	15/54/27	+51/36/50	14	a	15-16 Sept.	7:31	9:08	98m	✓	2	He	30+20			9	63B 4°30'	3"	6.85	IIa-D	4h57	Axis 270° declin 1 10 trails
49	"	g. tel. Parkes Sam.	23/10/22	+12/46/40	15	a	"	9:32	10:32	60m	✓	3	He Ne	10+10 5+5			11	9B 4°30'	3"	6.85	IIa-O	5E46	349.5 star not obl
50	"	g. tel. Parkes S.	00/57/48	-17/39/05	16	?	"	10:45	11:45	60m	120m	3	"	"			"	"	"	"	"	1E21	280.5 declin 3 l. a. Br.
51	"	NGC 62	00/15/36	-13/38/30	14	a	"	11:59	12:29	30m	✓	3	"	"			"	"	"	"	"	5W07	280.5 2
52	"	ma. NGC 918	02/23/51	+18/23/30	—	—	"	12:59	15:35	156m	300	3	He Ne	5+5 2+2			16	"	1.4	6.20	IIa-D ?	1W03	183.9 3 should have been 103+
2953	Sc	21 45 13	-17 49	2144-17			Sept 16	8:14	12:14	240m		2-3	He Ne	2+2 8+8			13	4B 4°30'	3"	6.85	IIaD Hed	2W25	Base 180°
54	"	4C 5.7	01 45 03	-05 48			"	12:31	16:01	210		2-3	12+12				11	"	"	"	IIaD Hed	2W12	" 180°
55	"	2144-17	21 45 13	-17 49			Sept 17	7:30	11:28	238		3	3+3+3				10	"	"	"	IIaD Hed	1W43	" 270°
~~56~~	"	"	"	"			Sept 19	7:12 12:04	9:04 12:39	117 35		1-2						"	"	"		3W02	" " ; total exp. 390m.
2956	"	3C 107	04 10 41	-01 04			"	13:37	16:07	150		1-2	9+9				15	"	"	"	"	0W05	" "
2957	Mw	Nova Her 1934 per Lyg 4901	18-06-29	+45°52			Sept 20	7:49	9:19	90m		1-2	He 45+45 Ne 30+30				10	11B 18°15'	3"	"	103a-O	3W23	132°
58	"	Nova Lyg 4901	3-28-52	+93°47			"	11:09	14:09	180		1-2	"				"	"	"	"	"	1E08	313°
59		Crab Neb	5-32-30	+22°01				14:42	16:52	130m		2	He 4+4				"	"	"	"	42-E	0E29	35°
60		"	"	"			Sept. 21	14:24	15:24	60		2-3	He 4+4				16	"	1.4	6.20	103a-E	1E33	174°
								15:37	16:47	70		"	"				"	"	"	"	"	0E10	328°
N2962	Sc	3C 446	22 24 03	-5 07			Oct 7	7 08	8 08	60		2-3	2x He 8+8				9	9B 4°30'	3"	6.85	IIaD Hed	0E58	Base 0°
63	"	4C 0.6	0 57 15	-0 05			"	8 33	11 33	180		3	2x 7+7				11	"	"	"	"	0E05	" 180°
64	"	4C 4.8	2 27 14	-3 48			"	11 59	13 29	90		3	2x 12+12				11	"	"	"	IIaD Hed	0W21	" 180°, Mon
65	"	4C 4.6	2 33 26	-4 10			"	13 45	14 45	60		3	2x 12+12				11	"	"	"	"	2W03	" " "
66	"	3C 90	3 34 34	+12 56			"	15 13	16 13	60		3	2x 12+12				11	"	"	"	"	3W02	" " "
67	"	3C 352	17 09 45	+46 04			Oct 8	7 19	7 49	30		3	2x 6+12				11	"	"	"	IIaD Hed	4W03	" 90°
68	"	3C 454.3	22 52 18	+15 58			"	8 21	9 41	80		3	2x 8+15				9	"	"	"	"	0W13	" 270°
69	"	0229+13	2 29 58	+13 14			"	9 58	12 58	180		3	2x 15+30				11	"	"	"	IIaD Hed	0E09	" 270°
70	"	3C 175	7 11 11	+11 50			"	13 16	14 46	90		2	2x 12+24				13	"	"	"	IIaD Hed	3E02	" 270°, Mon.
71	"	3C 239	10 09 39	+46 38			"	15 01	16 26	85		2	2x 12+24				13	"	1	"	"	4E21	" 90°, " "
72	"	4C 15.1	0 04 16	+15 56			Oct 9	7 34	11 04	210		2-3	2x He 20+20				13	"	"	"	IIaD Hed	0W26	" 270°
73	"	3C 57	2 00 20	-11 42			"	11 16	13 16	120		2-3	2x 5+10				13	"	"	"	IIaD Hed	0W43	" 180°
N2974	AS	3C 449	22 29 51	+39 11	13		Oct 11/12	6 50	7 50	60	✓	3	He 12+12 Ne 5+5				13	9B 4°30'	3"	6.85	IIaD blkd	1E06	W 2 Base E-W
75	"	PHL 1049	1 33 26	+7 47	17.9		"	8:10	10:40	150	✓	4	"				"	"	"	"	"	1E20	" "
76	"	PHL 1027	1 31 20	+3 27	17.0		"	11:07	13:07	120	100	4	"				"	"	"	"	"	1W11	" "
77	"	PHL 1065	1 35 02	+7 05	16.6		"	13:30	15:30	120	90	4	"				"	"	"	"	"	3W31	" "
78	"	PHL 1105	1 39 50	+8 07	15.7		"	15:50	16:41	51	✓	3	"				"	"	"	"	"	4W36	" "
79	"	3C 455	22 53 21	+13 02			Oct 12/13	6:39	7:59	80	✓	2	"				"	"	"	"	"	1E16	" "
80	"	PHL 1194	1 49 32	+9 07			"	8:30	12:00	210	✓	2	"				"	"	"	"	"	0E10	" "
81	"	PHL 1058	1 34 14	+7 37			"	12:34	14:04	90	✓	2	"				"	"	"	"	"	2W09	" "
82	"	PHL 1070	1 35 38	+3 26			"	14:22	16:35	133	✓	1-2	"				"	"	"	"	"	4W42	" "
83	"	3C 29	0 55 55	-1 34			Oct 13/14	6:57	9:27	150		<1	"				"	"	"	"	"	1E47	" "
84	"	PHL 1079	1 36 38	+3 28			"	9:41	9:46	5		<1	"				"	"	"	"	"	1E10	"

CHARLES R. MADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
							Oct. 1966																
2985	ARP	3C445+nf. SW	22/22/12	−2/13/45	17/16	e+a	14-15	6:49	7:49	60m	✓	1-2	He Ne	10+10 5+5			13	98B 4°30'	3"	6.85	IIa-o thd	0E47:	base 244°
86	"	Atho #201	00/22/01	-00/38/50	17,18	a	"	8:26	9:36	90m	✓	2		"			"	"	"	"	"	1E00	base 184.8
87	"	P 2349-01	23/58/20	-01/17/35	17	e	"	9:53	10:53	60m	20	3		"			"	"	"	"	EXPT 103a-F	0W49	base 180°
88	"	NGC 918 (NE)	2/23/45	+18/24/35	—	—	"	11:23	16:30	307m	✓	4		5+5 2+2			17	"	1.5	6.20	"	3W53	base 183.9
2989	"	B202-17	2/03/29	-17/07/35	18.5	epe	16-17	11:51	13:51	120m	:	1-2		10+10 5+5			13	"	3"	6.85	"	1W42	base 0°
90	"	Atho #327	5/20/07	+06/42/05	16/18	d+e	"	14:14	16:30	136m	✓	2		"			"	"	"	"	"	1W05	base 296.8 mi. rad. + middle rad of 3
N2991a	RPK	Ton S 120	23 48 17	-26 34	15.7	sdOe	Oct 17/18	7:17	7:56	39m		1-2	He	10+10			13	BL1 15°45'	1.4	6.30	IIa-o baked		Slit NS, trailed S cont. 20"/hr. 30"/hr S.
b	"	"	"	"	"	"	"	7:57	8:26	29m		1-2	"				"	"	"	"	"		
c	"	"	"	"	"	"	"	8:26	9:02	36m		1-2	"				"	"	"	"	"	0E48	Well into eclipse at 7:27. Shower rate: 15-20"/48.
2992a	"	"	"	"	"	"	"	9:11	9:58	45m		1-2	He	10+10			"	"	"	"	"		Well into eclipse 10:15, min 10:51-10:8
b	"	"	"	"	"	"	"	9:56	10:29	33m		2	"				"	"	"	"	"	1W18	
c	"	"	"	"	"	"	"	10:29	11:08	39m		2	"				"	"	"	"	"	2W04	2.5 mm window, blue star at redisposition
2993	"	Star A, SN 1572	00 23 26	+63 57	~14.5		"	11:34	12:30	56m	X 2	3-1	"	"			11	"	"	"	"	2W43	" "F star" at redisposition
2994	"	Star B, SN 1572	"	"	~13.5		"	12:37	13:08	31m	X 2	1	"	"			"	"	"	"	"		
2995a	"	Ton S 120	23 48 17	-26 34	15.7	sdOe	Oct 18/19	6:45	7:42	57m		2-3	He	15+10			14	63B 8°00'	3"	6.95	"		Entered eclipse 7:32, ~7:42 Mm cont. trailing, overt. as 2991/2
b	"	"	"	"	"	"	"	7:43	8:28	45m		2					"	"	"	"	"	0E40	
c	"	"	"	"	"	"	"	8:28	9:06	38m		2-3					"	"	"	"	"		
2996a	"	"	"	"	"	"	"	9:11	10:05	54m		2	He	10+10			"	"	"	"	"		clouds? 10:30-10:40
b	"	"	"	"	"	"	"	10:06	10:57	57m		1-2					"	"	"	"	"		Eclipse 11:10
c	"	"	"	"	"	"	"	10:57	11:37	40m		2					"	"	"	"	"	1W51	
N2997	"	Star A, SN 1572	00 23 26	+63 57	~14.5		"	12:39	14:36	117m		2-3	He	8+8			"	BL1 15°45'	1.4	6.30	"	4W14	2.5 mm window
2998	"	Pleiades HII 347	03 42 29	+24 44	15.6	d He	"	14:57	16:36	119m		2	He	8+8			"	"	"	"	"	3W26	1 mm window, Strong K em.
N2999a	"	Star A, SN 1572	00 23 26	+63 57	~14.5		Oct 20/21	10:50	11:55	65m		2	He	8+8			"	"	"	"	"	1W41	centered, first. Some contam. from B.
b	"	Star B, SN 1572	"	"	~13.5		"	11:55	12:40	45m		1-2					"	"	"	"	"	2W26	
N3000	"	Pleiades HII 134	03 41 40	+24 06	15.7	d He	"	13:00	15:16	(136m)	0	1-2	He	8+8			"	"	"	"	"	1W45	clouds throughout
N3001	AS	PHL 1007	01 29 14	+7 57			Nov 10/11	6:40	7:54	74	✓	2-3	He	5+4			13	98B 4°30'	3"	6.85	IIa-o Bkd	2E04	Stopped leg fog.
2	"	PHL 1222	1 52 02	+4 53			"	9:12	11:12	120	✓	2-4	"				"	"	"	"	"	0W53	
3	"	94b 3424	1 32 02	+5 37			"	11:32	13:32	120	✓	4	"				"	"	"	"	"	3W33	
4	"	3C 89	3 32 30	-1 18			"	14:05	15:33	88	200	4	"				"	"	"	"	"	3W33	
5	"	3C 236	10 03 54	+35 05			"	15:49	16:49	60	✓	4	"				"	"	"	"	"	1E41	
6	"	PHL 1065	1 35 16	+7 09			Nov 11/12	6:35	7:15	40	✓	3	"				"	"	"	"	"	2E45	
7	"	PHL 1127	1 42 20	+5 23			"	7:46	10:01	135	✓	4	"				"	"	"	"	"	0E02	
8	"	PHL 1213	1 51 26	+9 02			"	10:22	12:37	135	✓	4-6	"				"	"	"	"	"	2W22	
9	"	PHL 1070	1 35 38	+3 26			"	12:54	14:04	70	✓	6	"				10	"	"	"	"	4W05	
3010	"	3C 76.1	3 01 21	+16 18			"	14:24	15:44	80	✓	6-4	"				13	"	"	"	"	4W20	
11	"	3C 207c	9 45 57	+7 35			"	16:01	17:01	60	✓	4-3	He	12+12, Ne 5+5			"	"	"	"	IIaD Bkd	1E07	
12	"	PHL 1092	1 38 02	+6 08			Nov 12/13	6:27	7:27	60	30	4	He	5+4			"	"	"	"	IIa-o Bkd	2E31	
13	"	PHL 1053	1 33 32	+6 43			"	7:43	10:13	150	✓	5	He	5+5			11	"	"	"	"	0W20	
14	"	PHL 1226	1 52 38	+4 39			"	10:30	12:00	90	✓	5	"				"	"	"	"	"	1W48	
15	"	PHL 1114	1 40 14	+4 31			"	12:19	14:34	135	✓	4	"				"	"	"	"	"	4W35	

N2995a–c, N2997, N2998: CALIBRATION AUX. 308W, #10, 15M; CALIBRATION DIRECT Bkd 15M

CHARLES E. RADLEY CO., PATHFINDERS, LOS ANGELES, AND PASADENA, CALIF.

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1966	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N3016	AS	3C 197.1b	8 19 07	+47 08			Nov 12/13	15:13	17:05	112	200	3					13	98B 40°30'	3"	6.85	IIIa-O bkd	0W28	
17	"	PHL 1092	1 38 02	+06 08			Nov 13/14	6:14	6:44	30	✓	4					"	"	"	"	"	3E10	
18	"	PHL 3375	1 29 14	+07 33			"	6:59	9:14	135	✓	5					11	"	"	"	"	0E32	
19	"	PHL 1141	1 44 44	+07 49			"	9:33	12:03	150	✓	5					"	"	"	"	"	2W03	
20	"	PHL 1196	1 50 02	+5 07			"	12:18	13:18	60	✓	4					13	"	"	"	"	3W12	
21	"	PHL 1139	1 44 36	+4 32			"	13:31	14:16	45	✓	4					"	"	"	"	"	4W16	
22	"	3C 197.1b	8 19 07	+47 08			"	14:35	17:05	150	✓	5					15	"	"	"	"	0W30	
N3023	Sc	M 00-29	0 22 51	-29 40			Nov 14	7 06	8 36	90		3	He+Ne	12,12			11				IIa-O bkd	0W01	Base 180°
24	"	4C -5.6	1 36 27	-5 39			"	9 06	13 06	240		3	"	24			"				IIa-D bkd	3W21	" 180°
25	"	3C 205	8 36 31	+58 10			"	13 30	16 55	205		3	"	24,24			"				IIa-D bkd	0W08	" 90°
26	"	P 2345-16	23 46 20	-16 43			Nov 15	6 15	7 45	90		3	"	12,12			"				IIa-O bkd	0E09	" 180°
27	"	4C -0.6	0 57 15	-0 05			"	8 00	12 00	240		3-2	"	24,24			"				IIa-D bkd	2W53	" 180°
28	"	M 00-29	0 22 51	-29 40			Nov 17	6 27	8 57	150		2	"	12,12			13				IIa-O bkd	0W34	" 180°, Moon.
29	"	3C 57	2 00 20	-11 42			"	9 23	13 23	240		2-1	"	20,20			"				IIa-D bkd	3W23	" 270°
3030	"	3C 205	8 36 31	+58 01			"	13 39	16 39	180		2-1	"	10,10			"				IIa-O bkd	0W04	" 0°.
N3031	RPK	HD 171314	18 31 54	+22 19	~10p	dK5	Nov 18/19	6:46	6:50	4m 17s / 6m 51s		2	He16	A24			14	BL1 15°45'	1"4	6.30	IIIa-O baked	4W22	3 exp; 1st out of focus range), 2 in focus.
32	"	61 Cyg A	21 05 20	+38 34	6.8	K5V	"	7:50	7:56	75s, 42s, 110s		1-2			308W, D16, 3M		"	"	"	"	"	2W53	3 exp., 3 mg screen.
33	"	BD +44°112	00 49 23	+18 31	~10	dK5	"	8:31	8:36	29s, 29s, 97s		2	"	"			"	"	"	"	"	0E09	3 exp., no screen
34	"	BD +10°568	04 20 21	+11 13	~10	dK5	"	8:54	9:00	35s, 41s, 147s		2	"	"			"	"	"	"	"	3E17	3 exp., "
35	"	Pleiades HII 146	03 41 30	+23 20	15.9	dMe	"	10:21	12:53	152M		2-3	He 8+8 A 12+12				"	"	"	"	"	1W15	clouds at start.
36	"	Pleiades HII 1103	03 44 28	+23 18	16.6	dMe	"	13:15	16:09	174M		2-3	"				"	"	"	"	"	4W35	
37	"	Pleiades HII 2016	03 46 38	+23 14	14.9	dK5e	"	16:23	17:19	56M		1-2	"		300W, D10, 20M		"	"	"	"	"	5W38	
N3038	"	Pleiades HII 335	03 42 27	+23 57	14.9	dK5e	Nov 19/20	12:01	13:16	75M		2-3	"				"	"	"	"	"	1W42	clouds at beginning.
39	"	Pleiades HII 513	03 43 04	+23 16	15.0	dK5e	"	13:29	14:29	60M		2-3	"				"	"	"	"	"	2W57	light clouds.
40	"	Pleiades HII 554	03 43 14	+24 28	15.1	dK5e	"	14:38	16:12	94M		2	"				"	"	"	"	"	4W37	"
41	"	Pleiades HII 357	03 42 32	+24 03	14.5	dK5e	"	16:20	17:18	58M		2	"				"	"	"	"	"	5W44	"
3042	JW	Crab Neb	5-32-15	+22°01'		Neb	Dec 1/2	11:24	12:59	90M	✓	1	Ne 4+4				14	119B 18°15'	1"4	6.25	103a-E	0W16	Base 286°
43	AS	PHL 1024	1-31-02	+3 39			Dec 9/10	6:22	8:07	105	✓	3-4	He 6+6				13	98B 40°30'	3"	6.85	IIa-O bkd	0W03	E-W
44	"	PHL 1072	1-36-02	+5 44			"	8:29	10:04	95	✓	4	"				12	"	"	"	"	1W55	"
45	"	PHL 1236	1-53-38	+7 34			"	10:27	12:07	100	✓	4	"				11	"	"	"	"	3W40	"
46	"	3C 135	5-12-24	+0 54			"	12:33	14:33	120	✓	4	He 12+12,		Ne 5+5		13	"	"	"	IIa-D bkd	2W48	
47	"	3C 268.1	11-58-37	+73 12			"	15:07	17:18	131	300	3	He 6+6				"	"	"	"	IIa-O bkd	1E14	
48	"	PHL 1237	1-53-38	+6 33			Dec 10/11	6:41	9:41	180	✓	2	"				"	"	"	"	"	1W18	
49	"	PHL 1119	1-41-02	+8 11			"	9:58	12:24	146	✓	2	"				11	"	"	"	"	4W15	
50	"	3C 177	7-22-29	+15 17			"	12:50	14:50	120	✓	1-2	"				M	"	"	"	IIa-D bkd	0W68	
51	"	3C 285	13-19-48	+42 46			"	15:20	17:17	117	✓	1	"				M	"	"	"	IIa-O bkd	2E31	
52	"	3C 15	0-35-22	-1 20			Dec 11/12	6:40	9:00	105		4	He 12+12		Ne 5+5		"		"	"	IIIa-D bkd	2W00	Clouds
53	"	PHL 1186	1-48-26	+9 06			"	9:15	11:58	120		4	He 5+5				11		"	"	IIIa-O bkd	3W44	"
54	JLG	Pleiades HII 676	3-43-49	+23 42		dK2	Dec 12/13	7:21	8:17	56	✓16	3	Ne 15+15		W1 -35M		14	BL1 15°52'	1"4	6.23	IIIa-O Bird D76	1E45	Clouds, sky B.N.E.
55	"	" HII, 945	3 44 18	+23 01		dK2	"	8:31	8:57	26	✓	2	"		"		11		"	"	"	1E10	Clouds, " "

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, SEATTLE

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N3056	JLG	Pleiades HII 1110	3 44 41	+24 34	14.7	[illegible]	Dec 12/13	9[11]	9[47]	36	✓	2	He 10+10 Ne 15+15		W1		14	BL 1 15°50	1.4	6.23	IIaO Bld	0E19	
57	"	" 890	3 44 10	+24 16	14.7	dMe	"	10[01]	13[31]	210	170	2	"		W2	D76	"	"	"	"	"	3W25	Diffuse Light, bright star near Reflection Neb?
58	"	G191B2A	5 02 53	+52 46	11	K	"	13[55]	13[59]	4	/	2	"		"	K early devel.	8	4	3"	6.90	"	2W35	
59	"	G191B2B	5 02 55	+52 47	11.5	DA	"	14[04]	14[15]	11	/	2	He 25+25 Ne 20+20		"		"	"	"	"	"	2W47	
3060	"	G195-34	9 36 08	+38 04	12.7	[illegible]	"	14[26]	14[42]	16	/	2	"		"		"	"	"	"	"	1E14	
61	"	GD103	9 43 18	+31 46	15.9	K	"	14[52]	15[52]	60	/	2	He 10+10 Ne 15+15		"		14	"	1.4	6.23	"	0E11	
62	"	Ross627	11 22 35	+21 31	13.8	DA	"	16[25]	17[06]	41	60	3	He 25+25 Ne 20+20		"		8	"	3"	6.90	"	0E37	
N3063	JLG	Pleiades 1355	3 45 22	+23 56	15.4	Me	Dec 13/14	12[38]	13[38]	60	✓	2	He 10+10 Ne 15+15		W1	D76	12	"	1.4	6.30	IIaO Bld	3W36	Diffuse light from nearby bright stars
64	"	G195-34B	9 37 44	+54 52	[illegible]	K	"	14[06]	15[41]	93	✓	3	"		"		12	"	"	"	"	0E13	
65	"	GD104	9 45 26	-9 10	15.6	DC	"	15[54]	17[04]	70	✓	3	"		"		12	"	"	"	"	1W03	
3066	JLG	Pleiades 212	3 41 55	+24 19	15.9	dMe	Dec 14/15	6[21]	7[51]	90	✓	2	He 10+10 Ne 15+15		W1	D76	12	BL 1 15°52	1.4	6.30	IIaO Bld	2E05	Bright sky
67	"	0237 -23°	2 38 40 1950	-23 19	16.7	Emi +Abs	"	8[17]	11[17]	180	X2	1-2	He 10+10 Ne 20+20		W1		10	16°15	3.0	6.90	"	2W24	1/2 Windowed - Sky bright
68	"	LP31-60	3 05 24	+73 36	15.7	dM5	"	11[35]	13[42]	124	✓	3-2	"		W2	D19	8	63B 8°45	3"	6.90	IIaO Bld	4W23	
69	"	GD72	6 06 51	+28 15	14.6	DA	"	14[40]	N[54]	44		3	"		W2		8	"	"	"	"	2W34	
3070	"	GD77	6 37 26	+47 47	14.8	DA	"	15[03]	15[53]	50		2	"		W2		8	"	"	"	"	3W11	
71	"	GD85	7 16 32	+40 27	14.9		"	16[01]	16[55]	54		2	"		W2		8	"	"	"	"	3W25	
72	"	GD87	7 37 47	+43 00	12.7	HBA	"	16[58]	17[07]	8		2	"		W2		8	"	"	"	"	3W15	
73	JLG	GD2	0 04 58	+33 01	13.7	DAWK	Dec 15/16	6[31]	6[53]	22		1-2	"		W1	D19	8	"	3"	6.90	IIaO Bld	0W38	
74	"	GD3	0 06 10	+44 44	13.0	Bp	"	7[03]	7[17]	14		2	"		"		8	"	"	"	"	1W00	
75	"	GD8	0 37 15	+31 16	14.5	DAWK	"	7[25]	8[32]	67		2-1	"		"		8	"	"	"	"	1W44	
76	"	Feige6	0 40 30	-09 02	14.7	Bp	"	8[54]	9[54]	60		2	"		"		8	"	"	"	"	3W03	
77	"	GD45	3 16 34	+34 32	14.3	DA	"	10[22]	10[56]	34		2	"		"		8	"	"	"	"	1W30	
78	"	Pleiades 1485	3 45 40 17	+24 47	15.7	dMe	"	11[13]	12[48]	95		2	He 15+15 Ne 10+10		W2	D19	12	BL 1 15°50	1.4	6.30	"	2W53	
79	"	LP33-276	6 03 15	+73 32	17[m]	?	"	13[13]	14[13]	60		2	"		H		12	63B 8°45	1.4	"	"	2W02	Unidentified.
3080	"	GD98	8 54 16 50	+40 28	14.8	DA	"	14[34]	15[49]	75		1	He 25+25 Ne 20+20		"		8	"	3.0	6.90	"	0W44	
81	"	GD99	8 58 41	+36 19	14.8	DA	"	16[13]	17[08]	55		1	"		"		8	"	"	"	"	2W00	
N3082	Sc	P2345-16	23 46 20	-16 43			Dec 16	6[16]	8[43]	147		2-3	He Ne 15+15				13	4B 8 4°30	3"	6.85	IIaD Hd	3W20	Base 0° Mon high Hands
83	"	3C205	8 36 31	58 01			"	9[30]	12[30]	180		2-3	"	4+4			9	"	"	"	D "	2E12	90 high Hands
84	"	3C201	8 32 23	17 25			"	12[59]	16[59]	240		2-3	"	4+4			11	"	"	"	D "	2W22	270 high Hands
85	"	3C57	2 00 20	-11 42			Dec 17	7[02]	10[32]	210		2-3	"	15+15			11	"	"	"	D "	2W30	270 Mon 4° Knotted
86	"	3C240	10 15 57	27 42			"	12[04]	16[34]	270		2-3	"	4+4			11	"	"	"	D "	0W23	270
87	"	3C225	9 40 27	13 57			"	14[49]	17[16]	27		2-3	"	15+15			11	"	"	"	D "	1W35	270°
88	"	3C37	1 16 35	2 48			Dec 18	6[34]	9[34]	180		2-3	"	15+15			11	"	"	"	D "	2W29	270° Mon
89	"	NRA062	1 11 00	31 58			"	9[50]	11[50]	120		2-3	"	4+4			11	"	"	"	D "	2W42	270° Mon
90	"	3C205	8 36 31	58 01			"	12[11]	17[11]	300		3-2	"	4+4			9	"	"	"	D "	2W30	90° 4° Knotted
91	"	4C29.02	1 11 35	29 48			Dec 19	6[26]	8[56]	150		3-2	"	8+8			11	"	"	"	D "	2W50	270° Mon
92	"	3C179	7 24 56	67 53			"	9[30]	11[41]	136		2-3	"	4+4			11	"	"	"	D "	1E32	180° Mon
93	"	P0420-01	4 21 39	-1 25			"	12[03]	13[18]	75		3	"	4+4			11	"	"	"	D "	3W03	270°
3094	"	3C249	12 16 18	25 41			"	13[34]	17[04]	210		3	"	4+4			11	"	"	"	D "	1E04	270°

CHARLES E. HADLEY CO., PHOTOPRINTERS, LOS ANGELES, SAN FRANCISCO, SEN YORK, SEATTLE

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			h m s	° ′ ″						m														haze
N 3095	ARP	Pks 0130-17	1 31 17	-17 01 40	15	a6	6 Jan	6:22	7:22	60	30	1	He Ne	10s 5s			15	GF3 4°30′	3″	6.85	IIa-0 thd	1W09	180°	hazy sc + NE
3096	"	3C 66	2 21 19	+42 53 20	16 16	"	"	7:41	9:41	120	✓	2	"	"			15	"	"	"	"	3W38	134°	
3097	"	Herzog C2	4 44 06	74 54 35	16	"	"	10:02	11:02	60	✓	2	"	"			13	"	"	"	"	1W36	90°	sky meter .45 at 10:00 P.M
3098	"	NGC 2612	8 32 29	-13 00 05	15	above	"	11:29	12:59	90	✓	2	"	"			13	"	"	"	"	0W15	118.2	.54 at 10:55
3099	"	NGC 3107	10 02 48	+13 50 05	17	extrem abs	"	13:17	14:17	60	✓	2	"	"			"	"	"	"	"	0W37	180°	
3100	"	NGC 3631 (wisps)	11 19 34	+53 23 00	18	a+ab	"	14:35	17:20	165	✓	2	"	"			"	"	"	"	"	1W20	270°	al. trailed
N 3101	JLG	GD83	7 11 26 1967	+21 38	15:3	DA	Jan 9/10	11:50	12:33	43	60	1-2	He 8+8 Ne 15+15		W1	30″	15	BL1 16°40	1.4	6.30	IIa0 Blkd 15″	0W52	1 Δ1	Windy, Bright sky
02	"	GD84	7 15 37	+45 52	15.2	DC	"	12:45	13:25	40	60	1	"	"	"		11	"	"	"	"	1W39	2 "	" Hy strong wind
03	"	G51-16	8 28 37	+32 49	15.7	DA5	"	13:44	14:55	71	90	1	"	"	"		11	"	"	"	"	1W56	3 "	Bright sky wind
04	"	G42-33	10 00 04	+14 51	15.4	?	"	15:21	16:16	55	NG	1	"	"	"		11	"	"	"	"	1W47	4 "	Fogged "
05	"	G196-61	11 14 45	+53 16	16.1	sdG	"	16:30	17:35	65	90	2-1	"	"	"		11	"	"	"	"	1W52	5 "	Dawn "
06	JLG	Feige 14	1 45 36 1950	-06 11	12.5	HB	Jan 10/11	6:36	7:51	21	✓	1	He 25+25 Ne 20+20		W1	30″	8	BL1 16°40	3″	7.0	IIa0 Blkd	0W38	1 Δ1	
07	"	−12°290	1 31 36	-11 38	11.4	Fb	"	7:00	7:22	22	✓	2	"	"	"		11	"	"	"	" 15″	1W20	2 Δ2	
08	"	BD+25°6725	2 05 55	+25 00	12.9	DA	"	7:30	7:58	28	✓	1	"	"	"		11	"	"	"	"	1W25	3 Δ1	Sky Bright +
09	"	"	"	"	12.9	DA	"	8:02	8:37	35	✓	1	"	"	"		11	"	"	"	"	2W04	4 Δ1	Windy. Hy strong wind
N 3110	"	VR 7	4 21 00	+16 14	14.0	DA	"	8:58	10:58	120	✓	1-0	"	"	W2	30″	11	"	"	"	"	2W20	5	
11	"	+19°1185B	6 00 16	+19 22	14.4	dK	"	11:10	13:10	120	✓	1	"	"	"		11	"	"	"	"	2W34	6	Some contamination from A, clouds be at top of sky only
12	"	GD91	8 26 42	+45 31	15.3	DA	"	13:37	14:17	40	✓	1	He 8+8 Ne 15+15		"		15	"	1.4	6.3	"	1W24	7	
13	"	G42-33	9 59 08	+14 52	15.8	DA?	"	14:31	15:31	60	✓	1-2	"		"		"	"	"	"	"	1W37	8	
14	"	GD125	10 52 01	+27 23	14.0	DA	"	15:47	16:49	62	✓	1	"		"		"	"	"	"	"	1W29	9	
15	JLG	0237-23	2 38 40 1967 1950	-23 19	16.6	Emiss	Jan 11/12	6:46	10:10	204	✓	2	He 20+20 Ne 15+15				12	BL1 15°40	3″	7.0	IIa0 Blkd 45″	3W38	1	W, bevel 3″ Bright sky
16	"	VR 16	4 25 42	+16 52	13.6	DA	"	10:23	10:58	35	✓	3	He 25+25 Ne 20+20		W1	30″	9	BL1 16°30	"	"	IIa0 Blkd 15″	2W09	2	
17	"	GD64	4 53 50	+41 51	14.0	DA	"	11:14	12:04	50	✓	3-4	"		W1		9	16°30	"	"	"	2W43	3	Clouds
18	"	G53-38	10 13 35	-01 04	15.5	DA	"	15:00	15:30	30	✓	3	He 15+15 Ne 8+8		W2	30″	15	63 B 8°30	7.4	6.3	IIa0 Blkd 15″	0W55	5	Thin Clouds
19	"	GD118	10 23 17	+47 03	15.3	dG	"	15:40	16:35	55 (+20)	✓	4	He 25+25 Ne 20+20		W2		8	"	3″	7.0	"	1W42	4	Heavy Clouds
N 3120	JLG	Feige 6	00 41 21	-08 57	14.5	Ab	Jan 12/13	6:22	7:21	59	✓	1	He 15+15 Ne 20+20		W1	30″	8	"	"	"	IIa0 Blkd 15″	2W22	1	Bright sky
21	"	h Per 1166	02 15 10	+56 58	13.4	DA	"	7:42	8:26	44	✓	1	"		W1		"	"	"	"	"	1W54	2 Δ2	
22	"	VR 7	04 21 58	+16 16	14.0	DA	"	8:58	9:39	41	✓	1	"		W1		11	"	"	"	"	0W59	3	
23	"	VR 16	04 26 40	+16 54	13.6	DA	"	9:44	10:19	35	✓	1	"		W1		11	"	"	"	"	1W39	4	
24	"	GD80	06 52 31	-02 06	14.9	DA wisps	"	10:45	12:45	120	✓	1-0	"		W2	30″	"	"	"	"	"	1W36	5	
25	"	G114B8A	08 59 08	-04 14	10.4	dG	"	12:59	13:02	3	✓	3	"		"		"	"	"	"	"	CE16	6	
26	"	G195-19	09 13 41	+53 39	14.8	DC	"	13:14	14:37	88	✓	2-1	"		"			"	"	"	"	1W07	7	
27	"	GD117	10 20 37	+46 11	Nr 17.0	DC?	"	14:56	16:41	105	✓	5-4	"		"			"	1.4	6.30	"	2W00	8	
N 3128	Sc	PHL 6638	00 45 27	-07 15			Jan 13	6:35	7:35	60		2-3	He Ne	10+10			11	QI B 4°30′	3″	7.0	IIa0 thd	2W36	Base 270°	Mon
29	"	3C 191	08 03 00	+10 21			"	8:20	16:50	510		3-2	"	10+10			7	8°30′	"	"		4W36	270°	widened to 4″
30	"	3C 37	01 16 35	+02 48			Jan 14	6:32	9:32	180		2	"	10+10			9	QI B 4°30′	"	"	IIa0 thd	4W05	270°	Mon
31	"	P 0420-01	04 21 39	-01 25			"	9:48	12:33	165		3-2	"	8+8			12	"	"	"		3W58	270°	
32	"	3C 205	08 36 31	+58 01			"	12:53	17:23	270		3-2	"	5+5			11	"	"	"	IIa0 thd	4W37	90°	widened to 4″
33	"	4C 29.02	01 11 35	+29 48			Jan 15	6:39	9:39	180		4-3	"	10+10			9	"	"	"	IIaD thd	4W21	270°	

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, OSAKA

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N3134	Sc	SN NSC3198	10 17 57	+45 44	13		Jan 15	10^{08}	10^{15}	$2^{m}75^{m}$		2-3	He Ne	5+5			9	98 B 4°36'	3"	7.0	IIa-O hkd	$4^{E}04$	Base 90°
35	"	4C 22.20	8 15 40	+22 44			"	10^{44}	13^{44}	180^{m}		3	"	5+5			"	"	"	"	"	$1^{N}23$	" 270°
3136	"	4C 32.28	9 23 34	+32 09			"	13^{58}	17^{35}	95^{m}		3		5+5			"	"	"	"	"	$3^{N}44$	" 270°
N3137	RPK	Pleiades HII 915	03-44-14	+23 14	14.8	dMe	Feb 2/3	6:34	7:54	80^{m}		1-2	He 12	12, He 8+8			14	BL 1 15°45'	1.4	6.3	IIa-O	$1^{W}12$	
3138	"	Pleiades HII 2193	03-47-16	+23 27	15.6	"	"	8:04	10:43	155^{m}		1	A 12	12, He 8+8			"	"	"	"	"	$4^{W}00$	
3139	"	Pleiades HII 2209	03-47-17	+23 07	16.0	"	Feb 4/5	6:25	8:40	135^{m}		2	"	"			"	"	"	"	"	$2^{W}04$	
3140	"	Pleiades HII 3069	03-49-35	+23 38	15.0	"	"	8:52	10:02	70^{m}		1-2	"	"			"	"	"	"	"	$3^{W}23$	
3141	"	Pleiades HII 2927	03-49-07	+24 38	15.1	"	"	10:10	11:48	95^{m}		2-0	"	"			"	"	"	"	"	$5^{W}11$	
3142	"	36 UMa B	10-28-19	+56 10	10.1	K7 V	"	18:15	13:22	$48,225$		3					"	"	"	"	"	$0^{W}03$	1st sweep cut out of frame.
3143	"	HD 95735	11-01-33	+36 12	9.0	M2 V	"	13:24	13:32	$37,23,70^{s}$		3					"	"	"	"	"	$0^{E}18$	" "
3144	"	HZ 29	12-33-23	+37 44	13.8	A0	"	13:51	14:38	$+7^{m}$		2-3	He 8+8, A 12+12				"	"	"	"	"	$0^{E}43$	cont. trailed, 2.5 mm window
3145	"	HD 147379	16-16-38	+67 19	10.0	M0 V	"	14:48	14:53	$63,25,140^{s}$		2					"	"	"	"	"	$4^{E}12$	as 3142.
3146	ARP	3C 66 Neb 5	2/21/28	+42/51/00	16	Ab	5 Feb	7:04	8:34	90^{m}	✓	2	He 10 Ne 5	5+2			14	98 B 4°35'	3"	6.7	IIa-O hkd	$3^{W}38$	base 90°
3147	"	" Neb 3	2/21/07	+42/57/40	15	Ab	"	8:43	10:13	90^{m}	✓	1	"				"	"	"	"	"	$5^{W}07$	" shy meta .52 (eg)
3148	"	I ZW 21	9/56/50	+51/42/40	16	—	"	11:47	12:47	60^{m}		2	"				"	"	"	6.85	IIa-O (1H6)	$0^{W}46$	base 90° start to west by mistake
3149	"	3C 285	13/20/08	+42/44/20	17	Em!	"	13:31	15:01	90^{m}	180^{m}	1-2	"				12	"	"	7.0	"	$1^{E}03$	base 126.°0
3150	"	3C 296	14/15/32	+10/56/45	15+14	Ab	"	15:25	16:40	75^{m}	✓	2	"				"	"	"	7.0	"	$0^{E}18$	base 169.°0
3151	"	3C 66 Neb 4	2/20/41	+42/54/35	15	Ab	6 Feb	7:00	8:47	107^{m}	✓	3	"				"	"	"	"	"	$3^{W}46$	base 328.°7
3152	"	" Neb 7	2/21/15	+42/45/35	17	Ab	7 Feb	7:03	8:03	60^{m}		!	He 4 No 2	5+2			16	98 B 4°30'	1.4	6.3	"	$3^{W}05$	base 327.°5
~~3153~~	RPK	Pleiades HII 2199	03-47-16	+23 01	15.1		Feb 7/8	9:06	11:54	168^{m}		1	He 8+8 A 12+12				16	BL 1 15°45'	1.4	6.32	IIa-O	$5^{W}31$	
N3154	"	Pleiades HII 2962	03-49-15	+23 50	16.7		Feb 8/9	6:51	9:18	147^{m}		1-2	"	"			14	"	"	"	"	$2^{W}33$	
3155	"	Pleiades HII 83	03-41-24	+23 44	15.8		"	9:45	11:53	128^{m}		1-2	"	"			"	"	"	"	"	$5^{W}40$	
3156	"	IZW 21	09-55-54	+51 45			"	12:20	13:20	60^{m}		2	"	"			"	"	"	"	"	$0^{W}51$	held fixed, slit E-W.
3157	"	"	"	"			"	13:53	15:25	90^{m}		2	He 3 A 5	3+3 5+5			11	63 B 8°00'	3"	6.95	"	$2^{W}57$	" "
3158	"	HZ 29	12-33-25	+37 44	13.8		"	15:37	17:41	84^{m}		2-3	"	"			"	"	"	"	"	$1^{W}16$	2.5 mm window, 1 trail.
N3159	Sc	3C 205	8 36 31	+58 01			Feb 13	7:36	11:36	240^{m}		1-2	He Ne	5+5			12	98 B 4°36'	"	7.0	IIa-O hkd	$0^{W}47$	Base 90°
3160	"	HZ 29	12 33 14	+37 49			"	12:52	13:07	15		1-2	"	8+8			"	"	"	"	IIa-O hkd	$1^{E}39$	" 90°
3161	"	3C 230(2)	9 50 22	+00 08			"	13:20	13:30	10		2	"	5+5			"	"	"	"	IIa-O hkd	$1^{W}27$	" 270°
3162	"	3C 232	9 58 25	+32 33			Feb 15	6:58	12:58	300		1-2	"	15+15			"	"	"	"	103a-F	$0^{W}54$	" 270°
3163	"	3C 230(2)	9 50 22	+00 08			"	13:12	13:32	20		2	"	5+5			"	"	"	"	IIa-O hkd	$1^{W}38$	" 270°
3164	"	HZ 29	12 33 14	+37 49			"	14:23	14:42	39		1-2	He 25 A 15	25+25 15+15			11	63 B 8°0'	"	"	IIa-O (1H2)	$0^{W}05$	" 90°; 2.5 mm single trail; light bands
N3165	ARP	GH7-205	4 22 32	+17 47 54	12.3		5 Mar	6:56	7:05	12^{m}	✓	2	He 10 Ne 15	5+2			14	BL 1 15°45'	1.4	6.3	IIa-O (1H2)	$1^{W}50$	base 37.°0 E-W
3166	"	GH7-185 1950	4 20 35	+15 38 42	12.0		"	7:15	7:22	7^{m}	✓	2	"				"	"	"	"	"	$2^{W}06$	"
3167	"	GH7-200	4 21 57	+15 45 30	13.4		"	7:32	8:03	31^{m}	✓	2	"				"	"	"	"	"	$3^{W}47$	"
3168	"	NGC 1999 (also)	5 34 57	-06 41 15	12		"	8:27	8:32	5^{m}	✓	3	"				"	"	"	"	"	$2^{W}05$	" no trail
3169	"	prob. m. N 2350	7 11 55	+12 33 40	17		"	8:53	10:23	90^{m}	✓	3	"				17	"	"	"	"	$3^{W}18$	353.°2 through 3 + 4's
3170	"	NGC 3107	10 02 44	+13 49 30	15		"	10:44	11:44	60^{m}	✓	3	"				"	"	"	"	"	$0^{W}50$	328.°8
3171	"	VV 353	11 41 28	+26 39 50	14+14		"	12:60	13:00	60^{m}	✓	3	"				"	"	"	"	"	$0^{W}19$	315°
3172	"	Hergey "M"	13 15 18	+43 14 30	14		"	13:30	13:50	20^{m}	✓	3	"				"	"	"	"	"	$0^{E}18$	270°
3173	"	3C 285	13 20 00	+42 47 30	18		"	14:36	16:51	165^{m}	240	2	"				14	"	"	"	"	$3^{W}8$	123.°8

CHARLES D. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

1967

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1967	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N3174	JLG	GD87	07 38 59	+42 57	12.9	A1	Mar 30/31	9^h48^m	10^h19^m	31^m	✓	1	He 5+5 Ne 20+20 A 10+10	+5 +20 +10	W1	−40^mm	10	BL1 / 16°00'	3.11	6.40	IIa-O Blued	3^w23	(3× normal exp. for W1 no Clds. 1
75	"	Feige 42	11 26 37	+39 38	12.7	A1	"	4	10^h34^m	11^h04^m	30^m	✓	1	"	W1		8		"	"	"	0^w21	2
76	"	SS 193 II	12 40 32	+31 06	11.9	"	"	"	11^h33^m	11^h50^m	17^m	25	1-0	"	W1		8		"	"	"	0^E07	3
77	"	SS 202 II	12 43 07	+32 40	12.9	"	"	"	12^h01^m	12^h37^m	36^m	✓	1-0	"	W1		8		"	"	"	0^w38	Bright moon 4
78	"	Feige 81	13 30 13	+15 50.6	13.3	sdB	"	"	12^h51^m	13^h31^m	40^m	✓	1	"	W1		8		"	"	"	0^w45	" " " 5
N3179	JLG	GD87	07 38 59	+42 57	12.9	A1	Apr 2/3	9^h14^m	9^h46^m	32^m	✓	1	"		W1	−40^mm	8	BL1 / 16°00'	3.11	6.9	IIa-O Blued	4^w02	Clock drive failure - lost 1^w 1
80	"	Feige 46	11 35 47	+14 21	13.1	sdO	"	6^h53^m	11^h17^m	24^m	✓	2	"		"		"	"	"	"	"	0^w36	Sky Bright 2
81	"	Feige 55	12 03 23	+60 45	13.6	dG8	"	11^h32^m	12^h04^m	32^m	✓	2	"		"		"	"	"	"	"	0^w56	" " 3
82	"	G198-B6B	12 11 57	+39 12	16.0	DA	"	12^h24^m	13^h40^m	76^m	✓	3	He 5+5 Ne 10+10		"		14	"	1.4	6.30	"	2^w24	No contamination on Extra exp on A-14 3C 273 5 min 44
83	"	3C 273B	12 27 25	+02 14	12.7	QS	"	14^h00^m	14^h41^m	41^m	80	1	He 5+5 Ne 20+20 A 10+10		"		10	"	3.4	6.80	"	3^w10	" 5
84	"	E202-65	16 34 54	+45 56	12.1	sdG	"	14^h59^m	15^h09^m	12^m	✓	2	"		"		8	"	"	"	"	0^E38	" 6
85	"	Schmidt #1	17 09 45	+46 04	≈17-mag	DG?	"	15^h30^m	16^h30^m	63^m	120	2	He 5+5 Ne 10+10 He 10+10		"		12	BL1 / 15°00'	1.4	6.30	"	0^w20	Bright moon, low coast 7
N3186	JLG	HZ 29	12 33 14	+37 45	13.9	DB	Apr 3/4	12^h26^m	13^h54^m	88^m	✓	1-2	He 10+10 Ne 20+20		W1	−40^mm	10	63B / 8°00'	3.4	6.9	IIa-O Blued	2^w22	clds. very Bright Sky B2 1
87	"	SS 194 II	12 40 38	+32 07	11.3	Pec	"	14^h04^m	14^h10^m	6^m	✓	1	"		"		8	"	"	"	"	2^w30	" " 5 trails, 120^s/hr 2
88	"	SS 199 II	12 42 08	+32 32	13.1	A	"	14^h33^m	14^h41^m	18^m	✓	1	"		"		8	"	"	"	"	3^w00	" " out 17^m34^s intervals 3
89	"	GD 159	13 51 22	+18 28	13.0	A	"	14^h53^m	15^h13^m	20^m	✓	1	"		"		8	"	"	"	"	2^w22	clds " 4
N3190	"	GD 181	15 19 45	+15 38	14.0	sd6	"	15^h33^m	K^h08^m	45^m		1-0	"		"		8	"	"	"	"	1^w48	clds. " 5
N3191	SL	LB 9013	8 57 00	+16 58			Apr 8	8^h08^m	9^h38^m	90^m		2-3	He 5+5	Ne 5+5			11	48B / 42°20'	3"	6.9	IIa-O Hzd	2^D01	
92	"	LB 8891	8 53 45	+18 03			"	9^h48^m	11^h48^m	120^m		2-3	5+5	5+5			"	"	"	"	D	3^D24	
93	"	LC 10-31	11 00 29	+0 40			"	12^h08^m	13^h38^m	90^m		2-3	12+12	12+12			"	"	"	"	D	3^D59	
94	"	B 138	12 54 19	+37 17			"	14^h00^m	16^h00^m	120^m		2-3	5+5	5+5			"	"	"	"	D	4^D27	
95	"	LB 8891	8 53 45	+18 03			Apr 9	7^h45^m	12^h15^m	270^m		2-3	12+12	12+12			"	"	"	"	D	4^D46	
N3196	"	3C 309	14 58 29	+11 53				12^h43^m	15^h27^m	164^m		2-3	5+5	5+5			"	"	"	"	D	1^w57	Hbs weak
N3197	RPK	GH 7-230	04-26-17	+16 23	12.5pg	dM0e	Apr 16/17	7^h17^m	7^h29^m	12^m		1-2	A 29, He 16				14	BL1 / 15°45'	1.4	6.30	IIa-O baked	4^w54	} focus!
98	"	GH 7-253	04-30-00	+15 25	12.2pg	dK0	"	7^h37^m	7^h40^m	13^m		1	"	"			"	"	"	"	"	5^w11	
99	"	HZ 29	12-33-14	+37 49	13.4pg	DBp	"	13^h37^m	14^h47^m	76^m		2-3	A 45+45, He 30+30				11	63B / 8°00'	3"	6.95	"	4^w06	, 8 trails at 8^m47^s each.
N3200	"	GH 7-230	04-26-17	+16 23	12.5	dM	Apr 17/18	7^h21^m	7^h43^m	22^m		2	A 60, He 60				"	"	"	"	"	5^w11	
01	"	GH 7-253	04-30-00	+15 25	12.2	dK	"	7^h51^m	8^h12^m	21^m		2	"	"			"	"	"	"	"	5^w37	
02	"	HZ 29	12-33-14	+37 49	13.9	DBp	"	13^h34^m	15^h37^m	123^m		2-1	A 90+90, He 90+90				"	"	"	"	"	5^w00	7 trails at 17^m34^s each, 9 min under
N3203	ARP	TON 110	12/11/14	+18/16/20	14.0		May 3-4	9^h21^m	9^h41^m	20^m	✓	3	He/Ne 5+5				11	48B / 40°30'	3"	7.0	IIa-O Hzd	0^w03	out spectrum has 270°
N3204	"	Ton 1199	12/5/17	+22/03/45	15		4-5	8^h30^m	9^h10^m	40^m	✓	8			"		12	3°30'	11	6.2	"	1^w57	spectra O.K.
5	"	2nd SW M87	12/29/18	+12/39/40	16		"	9^h27^m	11^h27^m	120^m	✓	2			"		"	"	"	"	"	2^w01	233.6
6	"	Ton 1506	12/8/55	+33/51/17	17		"	11^h44^m	12^h44^m	60^m	120+	2			"		"	"	"	"	"	3^w31	270°
7	"	Ton 1505	12/18/21	+33/49/20	16		"	13^h05^m	13^h50^m	45^m	✓	2			"		"	"	"	"	"	4^w35	270 stopped by clds.
N3208	"	Ton 1507	12/19/18	+33/10/50	16		5-6	10^h30^m	11^h00^m	30^m	✓	3			"		"	3°30'	"	"	"	1^w48	"
9	"	NW of SE of M87	12/29/51	+12/27/40	16		"	11^h11^m	12^h41^m	90^m	✓	4			"		"	"	"	"	"	3^w59	"
10	"	Ton 1508	12/19/19	+33/43/30	16		"	13^h51^m	14^h21^m	30^m	✓	4			"		"	"	"	"	IIa-D	4^w09	"
11	"	Ton 1149	13/13/34	+26/33/25	15+		"	13^h42^m	14^h24^m	42^m	✓	4			"		"	"	"	"	IIa-O	4^w01	"
12	"	AH Galaxy	15/16/02	+21/35/52	16		"	14^h32^m	15^h32^m	60^m	✓	4			"		"	"	"	"	IIa-D	3^w51	

CHARLES R. HADLEY CO., PATENTEERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, SEATTLE

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
			d m s				May																
N3213	ARP	2 1408-26	12/58/09	+27/45/35	15	Em	6-9	8:49	9:34	45m	✓	3	Ne 10	Ne 5×2			12	98B 8°30'	3"	6.2	IIa-D baked	0E14	base 270°
14	"	NGC 4486	12/29/07	+12/31/11			"	9:48	11:33	105m	✓	3	"	"			18	40°30'	"	"	103a-F	2W14	298.0 slit almost along line of jet in west end
15	"	* m. 3C 287	13/29/20	+25/17/26	14		"	11:43	11:58	15m	✓	4	"	"			12	"	"	"	IIa-O baked	1W41	270
16	"	Herring M not	13/15/22	+43/18/50		Em	"	12:51	14:06	75m	✓	4	"	"			15	"	"	"	"	2W47	254.0 sl. out of focus
17	"	Anon Gal	15/32/06	+68/17/50	14	Abs Em+	x	14:18	15:30	72m	90	4	"	"			12	"	"	"	"	3W10	0.0 more out of focus
N3218	Sc	B 46	12 47 19	+34 35			May 11	10:49	13:19	150m		1-2	He 5+5	Ne 5+5			12	98B 4°30'	"	6.2	IIa-D thd	4W03	Base 90°
19	"	B 452	12 52 05	+31 16			"	13:30	15:00	90m		2	5+5	5+5			12	"	"	"	"	5W40	" 90°.
20	"	4C 10.31	11 00 35	+10 40			June 3	8:37	10:22	105m		2-3	8+8	8+8			10	"	"	"	"	4W22	" 270°.
21	"	4C 37.45	15 43 31	+37 20			"	10:38	12:38	120m		2-3	8+8	8+8			10	"	"	"	"	1W56	" 270°
22	"	4C 36.28	16 29 36	+36 14			"	12:55	14:55	120m		2-3	8+8	8+8			10	"	"	"	"	3W32	" 270°
23	"	4C 20.44	18 04 20	+20 28			June 4	12:38	14:53	120m		1	5+5	5+5			14	"	"	"	"	2W05	" 270°, interrupted by fog (20m).
24	"	4C 26.48	16 23 54	+26 56			June 5	11:29	14:59	210m		2-3	8+8	8+8			12	"	"	"	"	3W36	" 270°
N3225	ARP	Anon Gal	12/18/45	+33/45/00	17	C°	30 June	9:16	10:31	75m	2h	3	Ne 10	Ne 5×2			12	98B 4°30'	3"	6.15	IIa-O thd	5W01	base (48°.6):
26	"	Anon Gal	15/32/52	+68/39/30	16	Em+?	"	10:49	12:49	120m	3h	3	"	"			11	"	"	"	103a-F	4E02	7.1°
27	"	3C 356	17/23/41	+50/57/10	15.5	(k)	"	13:25	14:15	50m	✓	3	"	"			11	"	"	"	"	3W39	90° ½ widened on dekko 1
28	"	3C 371	18/07/18	+69/46/58	14	(e)+c	"	14:35	15:05	30m	✓	3	"	"			11	"	"	"	"	3W46	90° " "
N3229	"	Venus (dk side)	13/05/15	+13/05/15	9m/cd	A+e	4 July	8:23	8:24	1m	2m	2	Ne 30				8	BL1 31°15'	3"	6.15	103a-F	5W38	204° three elds.
N3230	Sc	4C 27.38	17 42 40	+27 54			July 5	9:15	11.15	120m		2-3	He 7+7	Ne 7+7			12	98B 4°30'	3m	6.2	IIa D thd	0W42	Base 270°
31	"	4C 33.44	18 14 49	+33 27			"	11:41	15:01	200m		3	7+7	7+7			12	"	"	"	"	2W53	"
32	"	3C 311	15 03 34	+60 09			July 6	8:39	10:09	90m		2-3	7+7	7+7			12	"	"	"	"	2W16	90°
33	"	4C 23.47	18 05 35	+23 33			"	10:39	15:09	270m		3	8+8	8+8			10	"	"	"	"	4W14	270°
34	"	SN 2SC 4254	12 17 11	+14 36			July 7	8:35	8:55	20m		3	15+15	X+15			10	"	"	"	IIa D thd	3W52	"
35	"	4C 39.40	16 32 55	+39 04			"	9:14	12:14	180m		3	8+8	8+8			10	"	"	"	IIa O thd	2W57	"
3236	"	4C 25.01	00 18 02	+25 52			"	12:30	15:00	150		2	8+8	8+8			10	"	"	"	"	2E02	"
3237	AS	SCO X-1	16 18 02	-15 33	13		July 4/5	8:20	11:05	165	✓	2-3	25+25	He 100W 90m	#10		11	BL1 15°15'	3"	6.17	IIa O bkd.	3W31	Continuous trail. Time marks at 8:50, 9:21, 9:52, 10:23, 10:54, and at 11:05. 1m stop. Rate 36"/hr for 1st segment Rate 45"/hr thereafter
3238	AS	Cyg X-2	21 43 20	+38 10	15		"	11:34	13:29	114	✓	3	12+12	He	"	"	9	63B 8°00	3"	6.17	IIa O Bkd.	0E32	
N3239	ARP	* SE M87	12/29/29	+12/23/50	17	abs.	Aug 4-5	8:15	8:49	34m	50	4	(He 10, Ne 5) ×2				12	98B 4°30'	3°	6.18	IIa O Bkd.	5W34	base 270°
40	"	* obj Anon gal	15/31/54	+68/16/15	19	abs.	"	9:03	10:35	92m	120	"	"	"			10	"	"	"	"	4W68	" 0°
41	"	Std. + bet Parkes	21/08/30	-10/31/30	10	abs.	"	11:01	11:06	5m	✓	"	"	"			"	"	"	"	"	0E58	211°.9
42	"	Pks 0019-00	00/14/39	-00/20/30	19	em	"	11:47	13:17	90m	✓	"	"	"			12	"	"	"	"	1E52	270°
43	"	* mean Anon gal	10/50/28	+34/05/40	14	abs?	"	13:37	14:07	30m	✓	"	"	"			11	"	"	"	"	1E38	270
44	"	Markarian #2	01/53/06	+36/40/40	14	Em abs	"	14:36	15:36	60m	✓	"	"	"			"	"	"	"	"	1E13	270
N3245	"	* SE M87	12/29/30	+12/38/50	17	abs.	5-6	8:11	9:06	55m	+	2	"	"			14	"	"	"	IIa-D thd	5W44	270° + abs. no register
46	"	* dg Anon gal	15/31/55	+68/16/10	19	abs.	"	7:19	11:25	126m	+	2	"	"			12	"	"	"	"	5W02	" 0° " " "
47	"	Markarian #1	01/14/37	+32/50/30	15	em	"	14:01	15:31	90m	✓	2	"	"			11	"	"	"	"	0E34	270° clear

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, SEATTLE

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N3248	ARP	*SE of N187	13/29/30	+12/55/50	16		6-7 Aug 67	8:20	9:10	50m	✓	2	(He 5 Ne 2)	2			18	98B 4°30'	1.4	5.5	IIa-D hzbd	5h53	base 253 (obl along superior image)
49	"	*dy Arm gal	15/31/55	+68/16/41	19		"	9:29	10:59	90m	✓	2		"			16	"	"	"	"	4h40	base 90°
50	"	Hevey Q	15/59/31	+81/29	17	em	"	11:17	12:17	60m	✓	"		"			12	"	3"	6.2	IIa-O hzbd	5h30	"
51	"	3C 371	18/07/05	+69/42/50			"	12:33	13:13	40m	X	"		"			11	"	"	"	"	4h30	" not corrected spect
52	"	*dy EqW327	23/27/17	+03/16/08	19	?	"	13:42	15:30	108m		"		"			16	"	"	"	IIa-D hzbd	1h16	270°
N3253	JLG	L 786-65	21 30 11 1967	-17 27	12.1	sd F	Sept 3/4	10:28	10:38	10	✓	1	He 40+40 Ne 25+25	W2		30min	8	BL1 16°00	3"	6.28	IIIaO-Bhzd	0w11	Δ1
54	"	G157-20	23 07 05	-07 56	14.6	K0	"	11:03	12:05	65	90	2		"			8	"	"	6.28	" C126	0E04	Δ1
55	"	GD3	00 07 05	+44 50	13.0	HOA	"	12:25	12:41	16	✓	3		"			8	"	"	"	"	0E07	Δ1
56	"	0237 -23	02 38 41	-23 18	17	QSRS	"	13:47	16:05	138	250	3		"			10	"	"	"	"	0w21	Uncorrected, Br sky, solid ba widened, Exp 04
3257	JLG	G16-35	16 11 15	+06 49	12.9	sd6	Sept 5/6	7:44	8:02	18	30	2	He VD+40 Ne 25+25	W1		30min	8	BL1 16°00	3"	6.28	IIaO BHzd C1E7 21hr	3w03	
58	"	G181-19	16 57 54	+34 55	13.4	sdK	"	8:34	9:00	24	36	2	"	"			11	"	"	"	"	3w18	Telescope oscillates in RA, damper jumping
59	"	G22-8	18 54 44	-04 26	10.8	sd6	"	9:26	9:29	3	4	3	"	"			11	"	"	"	"	1w45	
60	"	G22-9	"	-04 27	14.5	sdK	"	9:42	10:50	70	100	3	"	"			11	"	"	"	"	3w06	
61	"	G186-31=W1346	20 32 54	+24 57	12.5	DA	"	11:10	11:34	24	✓	3	"	"			11	"	"	"	"	2w12	Δ2
62	"	GD252	23 37 58	-03 09	14.7	sd6	"	11:58	12:38	40	60	4	"	"			11	"	"	"	"	0w12	
63	"	0237 -23	02 38 41	-23 18	17	QSRS	"	12:55	16:07	182	350	3	He 20+60 Ne 15+35	"			9	"	"	"	"	0w38	widened about 5" in Δ1
3264	JLG	G16-35	16 11 15	+06 49	12.9	sd6	Sept 6/7	7:37	7:57	20		1	He 30+30 Ne 25+25	W1		30m	7	63B 8°30	3"	6.28	IIaO Bhzd	3w41	
65	"	G138-65	16 49 38	+15 55	14.7	sdK	"	8:12	9:07	55		2		"			7	"	"	"	"	3w3	
66	"	GD205	17 10 34	+23 03	14.8	sd6 or DB	"	9:25	10:24	54		3	"	"			7	"	"	"	"	4w30	
67	"	GD234	21 35 07	+21 56	14.5	DA	"	11:00	11:43	43		3	"	"			7	"	"	"	"	1w32	
68	"	GD252	23 37 58	-03 09	14.7	sdG	"	11:52	12:45	51		3	"	"			7	"	"	"	"	0w32	
3269	"	0237 -23	02 38 41	-23 18	17	QSRS	"	13:00	16"	191	✓	3	He 20+20 Ne 12+12	W2		180m	9	BL1 16°00	"	"	"	0w23	widened 4", NS; plate left overnight
							(Sept 7/8 Oct 5-6)	13:07	16:00	173)	=364	3	He 20+20 Ne 12+12									0w45	Two nights exposure
N3270	ARP	NGC 6240	16/51/21	+02/37/30	14.7	cB	Oct 4/5	7:27	8:27	60m	90	1	He 10 Ne 25	N2 x2			12	98B 4°35'	3"	6.3	IIa-O Bhzd	4h45	base 270°
71	"	HD 1326	00/16/56	+43/48/25	11.0	N6E	"	9:35	9:35	18s	60	"		"			"	"	"	"	"	1E32	"
		HD 16160	02/30/18	+06/25	11.7	N1	"	9:43	9:45	90s	2m	"		"			15	"	"	"	"	3E35	"
72	"	NGC 1090	2/45/11	-00/24/30	12.8	A-F	"	10:15	11:45	90m	+	"		"			"	"	"	"	"	1E55	"
73	"	NGC 1055	2/40/23	+02/16/50	12.8	?	"	12:03	12:33	30m	90m	"		"			"	"	"	"	"	0E57	284.0
74	"	IC 310	03/14/55	+41/10/10			"	12:46	13:46	60m	✓	"		"			"	"	"	"	"	0E20	270.0
75	"	3C 120	04/31/27	+05/17/45	(B5)	2nd em	"	14:05	16:15	130m	✓	"		"			"	"	"	"	"	0w53	180° slit wasty nucleus
N3276	NS	IZW 1727+50	17-27-29	+50°14'	16.4	C Gal	Oct 7/8	7.14	9.14	120m		2	He 20+20 Ne 20+20				14	63B 8°00	3"	6.3	IIaO baked	5w00	Δ1 Trailed ½" 0°
77	"	II ZW 2130+09	21-30-48	+10°00'		"	"	9.37	10.37	60m		3	"				"	"	"	"	"	2w19	" stellar nucleus trailed ½. 270°
78	"	I ZW 0051+12	00-51-53	+12°31'		"	"	10.54	11.54	60m		2	"				"	"	"	"	"	0w19	Δ2 untrailed no prism stellar nucleus 270°
79	"	III ZW 0141+16	01-42-07	+16°53'		"	"	12.15	13.45	90m		2	"				"	"	"	"	"	1w18	" not Trailed v. diffuse 270°
80	"	III ZW 0211+03	02-12-05	+3°58'		"	"	13.55	15.15	80m		1-2	"				"	"	"	"	"	2w18	" not trailed ~7" dia 270°
81	"	3C120	04-31-25	+5°17'	14.2	"	"	15.30	16.10	40m		3	"				"	"	"	"	"	0w34	Δ1 Trailed 270°
82	"	II ZW 2105+03	21-06-02	+3°44'		"	Oct 7/8	7.05	7.50	45m		2	"				"	"	"	"	"	0w05	Δ2 not Trailed ✱ shd object ~7" dia 0°
83	"	II ZW 2148+02	21-49-02	+2°40'		"	"	8.04	9.04	60m		2	"				"	"	"	"	"	0w33	Δ2 untrailed not ✱ 0°
84	"	III ZW 0003+10	00-03-52	+10°48'		"	"	9.20	10.20	60m		2	"				"	"	"	"	"	0E31	Δ1 trailed looks like ✱ 0°
85	"	II ZW 0012+24	00-13-40	+24°18'		"	"	10.32	11.17	45m		2	"				"	"	"	"	"	0w18	Δ2 not trailed ✱ nucleus. 0°

CHARLES E. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1967	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N3326	RPK	H II 2402	03-47-44	+27 45	16.3 pg	dG	Nov 9/10	15:54	17:00	66m		3-1	He 20 Ne 20	+20 +20			15	63B 8°00'	3"	6.38	IIa-O baked	4h42	Central ½ of 1 mm window
N3327	"	H II 2548	03-48-08	+24 01	15.4		Nov 27/28	6:57	8:30	93m		1-0	"	"	300", D 10, 35m		"	"	"	6.25	"	2E40	
3328	"	H II 974	03-44-22	+24 41	15.4		"	10:33 abo	11:36 8:41-8:2	(68m)		1-2	"				"	"	"	"	"	0h30	Uninterrupted by fog.
3329	"	H II 2208	03-47-17	+24 28	15.8		"	11:48	13:32	104m		1-2	"				"	"	"	"	"	2h23	fog at end.
3330	"	H II 2588	03-48-14	+24 26	14.4		Nov 28/29	9:28	10:33	65m		0-1	"				"	"	"	"	"	0E32	
3331	"	H II 1628	03-45-59	+22 52	14.2		"	10:42	11:56	74m		1-0	"				"	"	"	"	"	0h53	
3332	"	H II 2082	03-47-00	+25 00	15.3		"	12:10	14:10	120m		0-1	"				"	"	"	"	"	3h06	focus not good.
3333	"	H II 1653	03-46-02	+24 37	14.7		"	14:43	16:51	126m		1-2	"				"	"	"	"	"	5h58	
N3334	JLG	L791-40	23 17 50 (1968)	-17 16	~~B25~~ 12.2		Dec 1/2	6:38	7:32	54		0-1	He 25 Ne 20	+25 +20	W1 35m		8	63B 8°45	3"	6.25	IIaO Baked	1h09	Sky Hg very bright = PHL 459
35	"	LTT 424	0 44 11	-21 45	~~B25~~ 14.6		"	7:43	8:44	61		1	"		W1		"	"	"	"	"	0h58	"
36	"	GD 20	1 56 00	+07 03	DA 14.5	DA	"	9:00	9:50	50		1	"		W1		"	"	"	"	"	0h56	" = Feige 15
N3337	JLG	LTT 9765	23 52 19	-19 09	14.4	sdK	Dec 2/3	6:33	7:15	42	✓	2	He 25 Ne 20	+25 +20	W1 35m		8	63B 8°45	3"	6.25	IIaO Baked clear	0h50	Sky very bright
38	"	LTT 125	0 14 35	-24 35	14.6	sdG	"	7:23	8:13	50	✓	4	"		W1		"	"	"	"	"	0h57	Bright
39	"	LTT 3755 (LGS1-57)	0 39 53	-22 32	15.2	DC	"	8:27	9:19	52	✓	1	"		W1		"	"	"	"	"	1h38	Sky bright
3340	"	GD 31	2 32 31	-05 20	14.5	DA9	"	9:26	10:01	35	✓	3	"		W1		"	"	"	"	"	0h17	
41	"	Van Altena 391	4 24 37	+11 52	16.1	sdF4	"	10:20	11:43	83	✓	5	He 10 Ne 10	+10 +10	W1		"	9B8 3°45	"	"	"	0h38	
42	"	LB 378	8 34 20	+19 24	15.6	DA3	"	15:49	16:49	60	✓	4	He 8 Ne 8	+8 +8	~~W3~~	W3	"	"	"	"	"	1h16	
43	"	LTT 3866	10 46 51	-20 03	13	sdG	"	17:06	17:11	5	✓	3	He 20 Ne 20	+20 +20	~~W3~~	W3	"	63B 8°45	"	"	"	0h36	Two stars on slit Faint wisps of nebulosity Bright core
44	"	LTT 3867A/B	10 46 48	-20 02 40	13.4 + 13.5	sdG K	"	17:17	17:40	23	✓	3	"		~~W2~~	W3	"	"	"	"	"	0h06	Dawn bright. Northern star of Couple
3345	JLG	Feige 4	0 18 19	+13 42	15.1	DB	Dec 3/4	6 26	7 31	65		2	He 15 Ne 20	+15 +20	W1 90m		8	63B 8°45	3"	6.25	IIaO Baked clear	0E14	
46	"	LTT 458	0 46 60	-17 04	14.6	sdG	"	7 39	8 21	42		3	"		W1		"	"	"	"	"	0h34	
47	"	GD 13	1 27 49	+42 19	14.8	DA	"	8 34	9 11	37		2	"		W1		"	"	"	"	"	0h54	rounded field, identification positive
48	"	G 77-43	3 16 39	-02 33	15.4	sdK	"	9 31	10 55	85		3	"		W1		"	"	"	"	"	0h41	
49	"	HL Tau 76	4 17 00	+27 14	15.2	DA	"	11 08	12 20	72		3	"		W1		"	"	"	"	"	1h05	
3350	"	Van Altena 216	4 19 46	+14 32	16.6	dM	"	12 42	14 47	125		3	He 8 Ne 8	+8 +8	W1		"	9B8 3°45	"	"	"	3h50	Sky Bright
51	"	G 195-42	9 48 08 (1968)	+53 24	15.3	DC	"	15 05	15 45	40		3	"		W1		"	"	"	"	"	2h03	
N3352	JLG	GD 71	5 50 37	+15 53	12.8	DA1	Jan. 6/7	13 59	14 14	20	25	1	He 25 Ne 20	+25 +20	W2		10	BL1 17°000	3"	6.15	IIaO Baked	3h39	Δ1
53	"	GD 298	9 28 41	+48 25	9.5	sdO	"	14 20	14 23	3	✓	2	"		W2		"	"	"	"	"	0h12	Δ2
54	"	β Cnc B	8 50 46	+28 28	~~13~~ 14	dM	"	14 44	15 09	20	~~32~~ 40	3			W2		"	"	"	"	"	1h31	5°E, 50" So. of A Δ1
55	"	GD 300	9 53 15	+51 46	12.5	sdO	"	15 15	15 39	24	✓	3			W2		"	"	"	"	"	1h84	Δ2
56	"	GD 299	9 36 08	+55 14	12.0	sdO	"	16 18	16 33	15	✓	2			W2		"	"	"	"	"	2h94	Δ2
57	"	LTT 4697	12 24 08	-24 25	13.8	sdK	"	16 48	17 29	41	30	1			W2		"	"	"	"	"	0h22	Δ1
N3358	JLG	NGC 2261	6 37 36	+08 46	—	—	Jan. 7/8	13 01	13 31	30	x3	3	He 25 Ne 25	+25 +25	W2		10	15°30	3"	6.15	IIaded	2h14	Δ2 Along E. rim
59	"	R Mon	"	"	~13	—	"	13 35	13 43	8	x3	3	"		"		"	"	"	"	"	2h26	Δ2
60	"	β Cnc B	8 50 46	+28 28	~14	dM	"	13 54	14 34	40	✓	2-3	"		"		"	"	"	"	"	1h05	Δ1 = G 47-9
61	"	LTT 4210	11 20 54	-27 02	13.3	sdF	"	14 56	15 26	30	✓	2	"		"		"	"	"	"	"	0h33	Δ1
62	"	SS 194 II	12 40 41	+32 07	11.3	F	"	15 46	15 59	11	✓	4	"		"		"	"	"	"	"	1E20	Δ2
63	"	SS 197 II	12 41 29	+32 13	13.0	A	"	16 03	16 23	20	✓	4	"		"		"	"	"	"	"	0h52	Δ2

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

NO.	OBS.	OBJECT	R. A. 1967.0	DECL.	MAG.	SP.	DATE 1967	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N3286	WS	Phs 0237-23	2-38-40	-23°18'	16.6	QSS	Oct 7/8	11:36	15:36	240m	✓	1-2	Ne 20 +20 / He 20 +20		20m 40m #4		14(4)	6328 / 8°00	3"	6.3	IIa-O baked	2W16	Δ2 Trailed 4" (for UV) 90°
87	"	NGC 1614	4-32-44	-8°39'				15:55	16:25	30m	✓	2	"				"	8°.00	"	"	"	1W12	Δ2 fixed 90°
88	"	II Zw 2112+21	21-12-45	+21°24'		C.gal	Oct 8/9	7:05	8:05	60m	✓	3	"				"	"	"	"	"	0W14	Δ2 fixed (nucleus near stellar) 90°
84	"	MIS I-112	21-28-44	+12°05'	17.2	Joe star	"	8:25	11:07	162m	✓	3	"				"	"	"	"	"	2W02	Δ2 Trailed 4" Sandage number 180°
90	"	Phs 0237-23	2-38-40	-23°18'	16.6	QSS	"	11:25	15:25	240m	✓	3	"				"	7°.00	"	"	"	2W10	Δ2 Trailed 4" (for UV) 180°
91	"	II Zw 0428+00	4-28-59	+00°35'		C.gal	"	15:40	16:15	35m	✓	3	"				"	8°.00	"	"	"	1W00	Δ3 fixed 259°
92	"	I Zw 1727+50	17-27-29	+50°19'		"	Oct 9/10	6:48	8:18	90m	✓	3	"				"	"	"	"	"	4W19	Δ2 Trailed 4" 270°
93	"	II Zw 2130+09	21-30-48	+10°00'		"	"	8:55	11:20	96m	✓	2	Ne 5+5 / He 5+5		20m 30m #10		"	10°.00	"	"	IIa-D baked	3W13	Δ2 " stopped for clouds 180°
94	"	I Zw 0051+12	00-51-53	+12°31'		"	"	11:36	13:36	120m	✓	2	"				"	4	"	"	"	2W09	Δ2 " 270°
95	"	II Zw 0120+34	01-21-33	+34°24'		"	"	13:48	14:48	60m	✓	2	Ne 20+20 / He 20+20				"	8°.00	"	"	IIa-O baked	2W54	Δ2 " 270°
96	"	3C 120	04-31-25	+5°17'	14.2	"	"	15:12	16:12	60m	✓	2-3	Ne 5+5 / He 5+5				"	10°.00	"	"	IIa-D baked	1W07	Δ2 " 180°
N3297	WS	II Zw 2045-00	20-46-27	-0°2'		C.gal	Nov 3/4	6:24	7:24	60m	✓	3	He 15+15 / Ne 15+15				11	6328 / 8°.00	3"	6.28	IIa-O baked	1W42	Δ2 untrailed 180°
98	"	III Zw 2307+08	23-08-08	+8°19'		"	"	7:52	8:52	60m	✓	3	"				"	"	"	"	IIa-O baked	0W48	" untrailed "
99	"	III Zw 2320+12	23-21-26	+12°51'		"	"	9:09	10:09	60m	—	3	"				"	"	"	"	"	2W13	" "
N3300	"	II Zw 0108+10	00-08-51	+10°48'	15.8	"	"	10:28	12:28	120m	✓	3	He 5+5 / Ne 5+5				"	10°.00	"	"	IIa-D baked	3W23	" trailed 4" "
01	"	II Zw 0432-01	04-33-34	-1°48'		"	"	12:41	13:56	75m	✓	3	15+15 / 15+15				"	8°.00	"	"	IIa-O baked	0W27	" untrailed "
02	"	I Zw 0553+03	05-54-00	+3°24'		"	"	14:19	15:34	75m	✓	3	"				"	"	"	"	"	0W46	" untrailed "
03	"	II Zw 0738+45	07-40-02	+45°31'		"	"	15:47	17:02	75m	✓	3	"				"	"	"	"	"	0W30	" trailed 4" 0°
04	"	II Zw 2301+22	23-02-24	+22°26'		"	Nov 5/6	6:30	9:02	152m	✓	2	"				"	"	"	"	"	1W13	" untrailed cloud all Time 180°
05	"	IV Zw 0024+39	00-25-35	+39°37'		"	"	9:15	11:00	43m	X2	2	"				"	"	"	"	"	1W50	" " stopped by cloud 270°
N3306	RPK	HII 105	03-41-32	+23 04	14.8	dG	Nov 6/7	9:09	10:25	76m	OK	3	He 20+20 / Ne 20+20		300m; D10, 20m		15	6328 / 8°00	3"	6.28	IIa-O baked	2E00	D19, 5m.
3307	"	HII 133	03-41-40	+24 17	15.3	dK3	"	11:12	13:14	122m		2	"				"	"	"	"	"	0W49	
3308	"	HII 624	03-43-25	+24 44	17.0	dMe	"	13:31	17:00	209m		2	"				"	"	"	"	"	4W36	central ½ of slit (15, ½ mm trails).
3309	"	HII 189	03-41-54	+23 25	15.4	dK	Nov 7/8	9:30	10:48	78m		2-3	"				"	"	"	"	"	1E33	
3310	"	HII 191	03-41-54	+24 44	15.6	dKe	"	11:00	12:25	85m		"	"				"	"	"	"	"	0W04	some thin clouds
3311	"	HII 1081	03-44-38	+23 12	16.1	dMe	"	12:40	14:04	84m		"	"				"	"	"	"	"	1W41	central ½ of 1 mm meridian.
3312	"	HII 1276	03-45-06	+23 12	16.7	dMe	"	14:19	17:00	161m		2	"				"	"	"	"	"	4W36	" " " , clouds.
3313	"	61 Cyg B	21-05-20	+38 34	7.8	K7V	Nov 8/9	7:03	7:15	295, 85s, 180s		2	—				"	"	"	"	"	1W35	clouds; 2.0 neg screen.
3314	"	HD 1326 A	00-16-29	+43 50	9.6	M1V	"	7:34	7:45	313, 85s, 220s		2	—				"	"	"	"	"	1E07	clouds; 1.0 screen.
3315	"	54 Psc	00-37-40	+21 04	7.3	K0V	"	8:11	8:18	265, 85s, 147s		2	—				"	"	"	"	"	0E57	clouds; 2.0 neg screen
3316	"	σ^2 Eri C	04-13-43	-7 43	12.6	dM4.5e	"	11:53	12:13	18m		3-4	Ne 20+20 / Ne 20+20				"	"	"	"	"	0E35	some clouds.
3317	"	HII 3187	03-50-02	+23 14	14.3	dKe	"	12:36	13:32	56m		2	"				"	"	"	"	"	1W08	
3318	"	HII 2601	03-48-15	+24 15	16.6	dMe	"	13:46	16:30	164m		2	"				"	"	"	"	"	4W08	central ½ of 1 mm meridian; clouds.
3319	"	GH 7-182	04-20-55	+14 10	10.8	K3	Nov 9/10	9:52	10:02	12m		0-1	"				"	"	"	"	"	2E51	
3320	"	GH 7-193	04-22-04	+13 58	12.3	K5	"	10:15	10:29	14m		1	"				"	"	"	"	"	2E25	
3321	"	GH 7-202	04-23-06	+16 54	11.5	K4	"	10:41	10:46	5m		2	He 40 / Ne 40				"	"	"	"	"	2E09	
3322	"	GH 7-215	04-24-54	+12 36	12.1	K6	"	10:53	11:05	12m		2	Hk 20+20 / Ne 20+20				"	"	"	"	"	1E52	
3323	"	GH 7-251	04-29-52	+14 58	13.7	K7	"	11:25	12:25	60m		3	"				"	"	"	"	"	0E35	
3324	"	GH 7-238	04-27-20	+15 12	13.7	M0	"	12:35	13:18	43m		2-3	"				"	"	"	"	"	0W20	
3325	"	HII 2602	03-48-15	+23 53	17.1	dM1e	"	14:14	15:44	90m		1-2	"				"	"	"	"	"	3W26	central ½ of 1 mm meridian.

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1968	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N3409	JL6	Ton. 102	12 39 14	+51 26	12.6	sdO	June 3/3	9 08	9 16	8	✓	2	He 25+25 We 20+20		W 1	90 sec	9	G3B 8°30	3"	6.19	IIaO Bkd CIIaB	14 36	Moon Bright
05	"	"	"	"	"	sdO	"	9 27	9 40	13	✓	2	"	"	"	"	9	"	"	"	"	2 00	Use moon eliminator, Guiding through
06	"	SN Kowalski at Galaxy	14 04 44	+53 17	8 Mag	Gel & Sll	"	9 55	10 58	60	✓	3	He 20+20 He 15+15		"	"	12	"	"	"	"	14 53	Bright moon; base 19°, both on slit (slightly widened) 4
07	"	GD345	15 27 24	+57 17	14	sdG	"	11 12	11 36	24	Moon streaky	4	He 25+25 We 20+20		"	"	9	"	"	"	"	14 09	Moon 5
08	"	GD 350	15 44 02	+60 22	12.5	sdK	"	11 53	12 01	8	"	4	"		"	"	9	"	"	"	"	14 17	moon set Guiding very sticky in declination 6
09	"	G169-34	16 55 49	+21 29	14.3	DA5	"	12 15	12 50	35	"	4	"		"	"	9	"	"	"	"	0 00 54	" " " " 7
3410	"	GD361	17 23 46	+41 01	13.5	sdG	"	12 35	13 18	19	✓	4	"		"	"	9	"	"	"	"	0 00 54	8
11	"	GD214	18 37 55	+15 05	14.3	sdG	"	13 36	13 55	19	✓	3	"		"	"	9	"	"	"	"	6 00 17	9
12	"	LTT 7873	19 53 59	-20 34	±15	DA	"	14 10	14 58	48	✓	3	"		"	"	9	"	"	"	"	0 00 04	10
13	JL6	GD 318	12 38 32	+48 50	13.5		June 3/4	5 36	5 56	20	1.2	2	He 20+20 He 15+15		W 1	40 sec	9	G3B 5°30	3"	6.19	IIaO blue cloudy	7 46 20	Moon Very Bright (1st quarter) 1
14	"	"	"	"	13.5		"	9 03	9 31	28	1.2		"		"		9	"	"	"	"	1 48	with Moonlight eliminator 2
15	"	Feige 57	12 07 14	+07 37	12.0		"	9 50	10 05	15	1.2		"		"		9	"	"	"	"	3 48 04	Much shining on mirrors A2 with eliminator 3
16	"	"	"	"	12.0		"	10 12	10 24	12	1.2		"		"		9	"	"	"	"	3 46 12	the eliminator A2 4
17	"	AC +58° 43662	13 45 16	+57 14	13.9		"	10 37	11 00	23	3		"		"		9	"	"	"	"	2 49	Moon bright 5
18	"	Feige 95	14 27 02	+21 15	13.0		"	11 13	11 43	30	3		"		"		9	"	"	"	"	2 49	With eliminator 6
19	"	Feige 96	14 28 51	+21 25	14.1		"	11 50	12 04	14	3		"		"		9	"	"	"	"	2 49	" " 7
3420	"	GD 357	16 41 58	+38 44	15.0		"	12 23	13 27	64	3		"		"		9	"	"	"	"	1 46	M6 moon 8
21	"	G 141-15	18 30 20	+08 34	13.6		"	13 44	14 21	37	3		"		"		9	"	"	"	"	6 00 55	" 9
N3422	JL6	GD358	16 46 10 1968	+32 32	14.0	DB	July 29/30	9 01	9 36	35	✓	1	He 20+20 We 20+20		W 1	40 sec	9	G3B 8°30	3"	6.19	IIaO Bkd CIIaB	14 34	SKY bright some moon 1
23	"	G181-45	17 23 08	+41 01	13.1	sdK	"	9 44	10 14	30	✓	1	"		"	"	9	"	"	"	"	1 46 35	" " 2
24	"	GD 367	17 47 59	+47 11	13.0	sdG	"	10 25	10 51	26	✓	2	"		"	"	9	"	"	"	"	1 47	" No moon 3
25	"	GD214	18 37 58	+15 06	14.3	sdG	"	11 12	12 42	90	✓	1	"		"	"	9	"	"	"	"	2 49 49	" " 4
26	"	GD 391	20 28 49	+39 07	13.5	DA	"	13 00	13 20	20	✓	2	"		"	"	9	"	"	"	"	1 46 37	" " 5
27	"	Cyg X-2	21 43 26	+38 11	16 Mag	Gpe	"	13 43	15 35	112	✓	2	"		"	"	9	"	"	"	"	2 46 36	" Trail; every ten minutes, hold RA slow motion 35 seconds 6
28	JL6	Feige 105	14 54 02	+12 52	13.0	A1	July 30/31	8 36	8 50	14	✓	1-2	He 20+20 We 20+20		W 1	40 min	9	G3B 830	3"	6.19	IIaO Bkd Mag C148	2 49	Bright moon
29	"	LTT 6079	15 13 13	-18 30	12.1	sdG	"	9 04	9 14	10	✓	1	"		"	"	9	"	"	"	"	4 49	" No cloud; ident probably correct
3430	"	G 225-67	16 33 51	+57 14	14.1	dMSc	"	9 33	10 00	27	✓	2	"		"	"	9	"	"	"	"	2 46 14	"
31	"	G 225-68	16 33 52	+57 14	15?	DC	"	10 04	11 15	71	✓	2	"		"	"	9	"	"	"	"	3 46 30	1/2 Window! No moon
32	"	G184-32	18 48 45	+28 04	12.9	HOF sdG	"	11 32	11 57	25		2-3	"		"	"	9	"	"	"	"	1 46 38	Clouds
N3433	JL6	Ton 209	14 33 53	+23 55	12.3	Bf	July 31/Aug 1	8 04	8 23	19		3	He 20-20 We 20-20		W 1	40 sec	9	C3B 8°30	3"	6.19	IIaO Bkd Mag C143	2 44	Bright Moon Eliminator
34	"	Feige 97	14 34 39	+30 15	12.3	Ap	"	8 31	8 46	15		3	"		"	"	9	"	"	"	"	3 46 04	" "
35	"	GD 215	18 41 56	+04 18	15.0	DA5	"	9 07	10 24	77		3	"		"	"	9	"	"	"	"	0 46 34	" "
36	"	G184-15	18 38 39	+16 24	16?	sdMp	"	10 48	12 09	86		3	He 8+8 We 8+8		"	"	9	9B 4°30	"	"	"	2 46 22	" moon, 1/2 window!
37	"	Cyg X-2	21 43 27	+38 11	16.	Gpe	"	12 33	14 58	145		3	He 20+20 We 20+20		"	"	9	G3B 8°30	"	"	"	2 48	Trailed every 10 m by RA & slow motion single Trail. Tel. Drive erratic
38	"	C 218-8	DO 39 37	+55 40	14?	sdO sdB	"	15 11	15 37	26	✓	4	"		"	"	9	"	"	"	"	0 E09	
N3439	JL6	GX 3,+1	17 43 58	-26 11	14	Em	Aug 1/2	8 20	8 56	36		1-2	He 20, Neon +20		W 1	40 sec	9	G3B 8°30	3"	6.19	IIaO Bkd	0 00 04	Moon very bright. Eliminator not used 11
40	"	GX 3,+1	"	"	11	"	"	9 06	9 42	36		1-2	"		"	"	9	"	"	"	"	0 00 54	" " " "
41	"	G210-36	20 47 57	+37 21	13.4	DA	"	9 57	10 13	16		2	"		"	"	9	"	"	"	"	1 E38	Moon bright, No eliminator 3
42	"	GD 394	21 11 44	+49 58	13.0	DAw	"	10 27	10 40	13		2	"		"	"	9	"	"	"	"	1 E35	" 4
43	"	G 184-15	18 38 39	+16 24	16?	sdMp	"	11 00	13 05	125		2	He 8+8 We 8+8		"	"	9	GB 8°30	"	"	"	3 00 25	No moon ↓ 3/4 Al 5

CHARLES E. BAGLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, SEATTLE, DENVER

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1968	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N 3364	JLG	h Per 1166	02 15 15	+56 58	13.7	B9	Feb. 2	7h 49m	8h 20m	31m	✓	2	He 25+25 Ne 25+25		W1	30m	18	BL1 15°30	3"	6.15	IIa-O Bld C[E]	3h 07m	with Moon Elimination
3365	"	"	"	"	13.4	DA	"	8 27	8 57	30	✓	2	"		W1		10	"	"	"	"	3h 44m	
3366	"	R Mon	06 37 36	+08 46 07	11.5?	Ape	"	9 19	9 44	25	✓	3	"		W1		8	"	"	"	"	0h 09m	
3367	"	NGC 2261	06 37 37	+08 47 37	—	Pec	"	9 53	11 23	90	✓	3	"		W1		8	"	"	"	"	1h 50m	193° p.a. Untrailed, E wing of neb. at bottom of slit, 4" west of slit
3368	"	L 970-27	11 06 26	-04 59	13.8	dM	"	11 53	13 05	73	110	3	"		W2	30m	8	"	"	"	"	0h 58m	
3369	"	L 970-30	11 06 21	-04 54	13.1	DA	"	13 22	13 42	20	✓	3	"		W2		10	"	"	"	"	5h 21m	
3370	"	L 970-30	11 06 21	-04 54	13.1	DA	"	13 47	14 12	25	✓	3	"		W2		10	"	"	"	"	0h 09m	
3371	"	Ross 627	11 22 40	+21 31	13.8	DA	"	14 23	15 05	40	80	2	"		W2		10	"	"	"	"	0h 30m	
3372	"	Feige 55	12 03 08	+60 43	13.2	DC?	"	15 27	15 55	28	20	3	"		W2		10	"	"	"	"	0h 56m	
3373	"	Feige 74	13 05 38	+19 45	12(?)	B	"	16 20	16 39	19	✓	1	"		W2		10	"	"	"	"	0h 38m	ΔZ
3374	"	SS 209 II	12 45 12	+27 38	12.7	Ap	"	16 46	17 07	21	✓	2	"		W2		10	"	"	"	"	1h 26m	
3375	"	G 4-46	02 53 43	+18 38	10	G	Feb. 3	7 53	8 03	10	✓	1	He 25+25 Ne 25+25		W1	30m	5	B2:1 15°30	3"	6.19	IIa-O Bld	2h 27m	Δ Z
3376	"	LTT 2535	06 21 09	-12 50	13	K	"	8 25	8 47	77	✓	1	4		W1		8	"	"	"	"	0h 28m	westward end of neb.
3377	"	NGC 2261	06 37 36	+08 46	—	Pec	"	9 53	12 53	180	✓	1	"		W1		8	"	"	"	"	3h 42m	ΔZ. Untrailed 130°
3378	"	G 45-20	10 55 01	+07 13	16	K?	"	13 43	15 46	118	✓	1	He 20+20 Ne 20+20		W1		8	63B 8°15	"	"	"	1h 58m	Identity doubtful. Wrong Plate
3379	"	Feige 76	13 15 42	+12 57	14	A	"	15 55	17 03	68	✓	2.3	"		W1		8	"	"	"	"	0h 55m	
N 3380	ARP	SN in NGC 1275	3 17 36	+41 /22/ 0	14.5	I	4 Feb	7:11	7:56	45m	✓	4	He 10 Ne 5	1Z			8	98B 403	3"	6.19	103a-F	1h 55m	
3381	"	"	"	"	"	"	"	8:34	6:04	90m	x2	4	"				8	"	"	"	"	3h 58m	Moonlight eliminate -
3382	ARP	NGC 2403 amp #8	7/37/53	+65/37	16	A[2]	19 Mar	7:40	9:00	80m	x2	2	He 5 Ne 10	x2			11	98 403	3"	6.19	IIa-O	1h 27m	base 127° through both neb
P3	"	L 84	12/17/00	+26/58/20	16.1	?	"	14:15	15:15	60m	>>	3	"				"	"	"	"	"	3h 03m	moon elimin - hand dimmed
P4	ARP	LTT 5874	13/12/51	-03/55/55	—	—	30 Mar	14:23	14:58	35m	—	1	"				11	98B 403	3"	6.19	IIa-O	1h 55m	some moon - diff guiding elimin
P5	"	GD-344	15/25/59	+43/18/50	—	—	"	15:19	16:29	70m	✓	1.3	"				"	"	"	"	"	1h 13m	elimin working well
W 3381	JLG	GD-334	14 19 38	+57 35	13.5	sdG	May 30/31	10 23	10 45	22	✓	2	He 25+25 Ne 20+20		W1	90m	9	B3B 8°30	3"	6.19	IIa-O Bald old	1h 42m	
P7	"	GD 336	14 30 41	+37 15	14.5	DAm	"	10 53	11 33	38	✓	2	"		"		9	"	"	"	"	1h 52m	
P8	"	G 178-9	14 13 31	+41 58	14.6	sdK	"	11 40	12 35	49	✓	2	"		"		9	"	"	"	"	3h 40m	
P9	"	G 138-6	16 09 27	+13 21	13.3	sdG	"	13 05	13 20	15	✓	2	"		"		8	"	"	"	"	2h 20m	
3390	"	GD 363	17 37 37	+41 53	15.0	DA	"	13 48	14 51	63	✓	2	"		"		8	"	"	"	"	2h 02m	
P11	"	GD 373	18 04 55	+31 38	15.5	sdG	"	14 39	15 14	14	✓	2	"		"		8	"	"	"	"	1h 59m	Raw
3392	JLG	GD 322	12 59 18	+59 14	15.0	DA	May 31/ June 1	8 44	9 45	61	✓	4	He 25+25 Ne 20+20		W1	90m	8	B3B 8°30	3"	6.19	IIa-O Bld old	1h 38m	
P13	"	GD 323	13 03 17	+59 37	14.5	sdB DAwd	"	9 52	10 31	39	✓	4	"		"		"	"	"	"	"	2h 20m	
P14	"	Feige 91	14 07 30	+59 50	13.2	DAs	"	10 39	11 07	28	✓	3	"		"		"	"	"	"	"	1h 52m	
P15	"	G 178-41	14 38 57	+45 26	13.1	sdG	"	11 20	11 36	11	✓	4	"		"		"	"	"	"	"	1h 48m	
P16	"	G 178-49	14 45 16	+39 07	14.6	sdK	"	11 49	12 25	41	✓	4	"		"		"	"	"	"	"	2h 32m	
P17	"	G 206-17	18 12 23	+32 48	16.2	DAs	"	13 59	15 10	71	100	3	He 20+20 Wa 15+15		"		10	"	"	"	"	1h 31m	Dawn, 1/2 sky bright
W 3398	JLG	H 247	12 57 43	+27 30	15.2	Bp	June 1/2	8 50	10 20	90		3	He 25 Ne 20+20	H2O	W1	90m	9	L63B 8°30	3"	6.19	IIa-O Bld new C[148]	1h 17m	Moon
P19	"	GD 346	15 32 49	+57 37	14.	sdG	"	10 40	11 04	24		4	"		"		9	"	"	"	"	0h 27m	Moon
3400	"	2w 1524, +60	15 24 24	+60 21	15	—	"	11 21	12 11	50	X2	3	He 20+20 Ne 15+15		"		10	"	"	"	"	1h 42m	Low surface brightness, about 6"
01	"	2w 1733, +59	17 33 20	+59 31	15, 16	—	"	12 28	13 13	45	X2	4	"		"		10	"	"	"	"	0h 36m	Double, north compact + bright 8" south large low 323° p.a.
02	"	GD 378	18 22 37	+41 02	14.5?	DB	"	14 45	15 09	24	✓	4	"		"		10	"	"	"	"	2h 04m	
3403	JLG	LB 2272	12 11 53	+53 14	13.8	sdB	June 2/3	8 32	9 00	28		2	He 25+25 Ne 20+20		W1	90m	9	"	3"	6.19	IIa-O Bld C[148]	1h 46m	Moon bright

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

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			1968																					
W3444	JL6	SN 1968m	23 19 24	+15 04	16.3	I	Aug 1/2	13 40	14 30	52		4	He 8 48 Ne 8 4 8		W1		9	98B 4030	3"	6.19	II a0 Bkd	0 W 10	½ B1, Galaxy ff, overlaps	C
45	"	G216 B14 A	22 59 49	+60 46	12.0	sdM	"	14 52	15 02	6		4	"		"		"	"	"	"	"	0 W 59	Δ2	7
46	"	G216 B14 B	"	"	15.5	DA	"	15 07	15 34	27		4	"		"		"	"	"	"	"	1 W 32	½ Δ1	8
W3447	JL6	M67 II-45	08 50 07	+11 53 50	14.3	dG	April 2/22 1969	8 40	9 52	72	✓	2	He 20+20		W1	90 mm	9	63B 8030	3"	6.19	II a0 Bkd (slow)	3 W 45	Slight moon. Should be off	
48	"	HZ 22	12 13 19	+36 50	12.7	B3	"	10 10	10 25	15	✓	4	He 40	+40	"		10	BL1 15 45	"	"		0 W 25	Off	
49	"	Feige 55	12 02 07	+60 49	13.2	DA var?	"	10 34	11 27	48	✓	2	"		"		10	"	"	"		1 W 37		
50	"	G 119-57	11 07 29	+29 13	14.7	sdM/F	"	11 45	12 45	60	100	3	"		"		10	"	"	"		3 W 32		
51	"	LTT 5560	14 10 52	−14 37	14.4	9Gb	"	13 10	14 18	68	100	3	"		"		10	"	"	"		2 W 35		
52	"	LPTS 852	14 42 28	−11 45	12.2	sdG	"	14 30	14 39	9	12	3	"		"		10	"	"	"		2 W 11		
53	"	HZ 22	12 13 19	+36 50	12.7	B3	"	14 50	15 10	26	✓	2	"		"		10	"	"	"		5 W 18		
54	JL6	M67 *"E"	8 49 30	+11 57 26	15.3	G	April 22/23	8 27	9 20	53		2	He 20+20		W1	−90 mm	10	63B x030	3"	6.19	II a0 Bkd clear slow	2 W 37	Moon Bright, ½ Δ1	
55	"	Coma T132	12 25 30	+29 01	11.8	G	"	9 29	9 32	3		1'	"		"		9	"	"	"	"	0 E 36		
56	"	Coma T80	12 10 54	+27 03	8.9	G	"	9 37	9 38	1		"	"		"		9	"	"	"	"	0 E 24		
57	"	Coma A 3	12 17 46	+25 36	12.6	K	"	9 43	9 51	8		"	"		"		9	"	"	"	"	0 E 09		
58	"	Coma T53	12 17 05	+23 17	9.8	G	"	9 56	9 57	40 sec		"	"		"		9	"	"	"	"	0 E 03		
59	"	Coma T102	12 22 12	+26 14	10.6	G	"	10 03	10 05	40 sec		"	"		"		9	"	"	"	"	0 00		
W3460	"	Coma T19	12 10 54	+27 33	8.9	G	"	10"	10 12	45 sec		"	"		"		9	"	"	"	"	0 W 18	140" Aperture	
61	"	G119-57	11 07 29	+29 13	14.7	M	"	10 35	11 27	62		"	"		"		9	"	"	"	"	2 W 36		
62	"	HZ 22	12 13 19	+36 50	12.7	B	"	11 44	12 09	25		1	He 40	+40	"		10	BL1 15 043	"	"	"	2 W 13		
63	"	LTT 5074	13 12 55	−03 56	13.9	K	"	12 22	13 45	83		1	"		W2	90 mm	10	"	"	"	"	2 W 49		
64	"	GX3+1	17 43 55	−26 11	14.4	Pec	"	14 45	15 45	90	X3	1	"		"		10	"	"	"	"	0 W 4	Guided 10" in middle of B2	
W3465	JL6	G185-32	19 36 00	+27 39	13.7	DA	July 20/21 1968	12 57	13 34	37	✓	4	He 40+40 Ne 40+40		W2	17 mm	10	BL1 16 080	3"	6.19	II a0 Bkd DIG	2 W 07		
66	"	G125-59	20 03 52	+35 37	14.0	sdK	"	13 52	14 40	48	✓	4	"		"		"	"	"	"	"	2 W 45		
67	"	GD 3	00 07 11	+44 50	13.0	Ab	"	14 53	15 11	19	✓	4	"		"		"	"	"	"	"	0 E 47		
68	"	G216 B14 A	22 59 44	+60 46	12.0	sdM	"	15 23	15 31	8	✓	4	"		"		"	"	"	"	"	0 W 41	Comet 1968 I 7" pa 290° 15 mag	
69	JL6	GD 224	19 42 28	+12 30	15.0	sdG	July 21/22	12 07	12 57	50	✓	4	He Ne 20 +20		W4		16	63B 8400	3"	6.19	II a0 Bkd Hg W2	1 W 28		1
3470	"	GD 231	20 33 52	+18 52	15.3	sdG	"	13 16	14 01	65	✓	4	"		"		"	"	"	"	"	2 W 00	Dec, Sticky; changed from clear & RA rate	2
71	"	G189-50	22 55 02	+33 43	13.5	sdG	"	14 35	14 50	15	✓	4			"		"	"	"	"	"	0 W 10		3
72	"	G241-46	23 08 48	+63 48	14.0	DA	"	14 48	15 33	35	✓	4	"		"		"	"	"	"	"	0 W 39	Dawn	4
N3473	JL6	G155-27	18 33 02 1950	−08 18	15.1	sdK8	Sept 18/19	7 48	8 54	66	✓	2-3	He Ne 20+20 40+40		W1	90 mm	8	63B 8030	3"	6.10	II a0 Bkd DIG	2 W 84	Bright Moon	1
74	"	GD 235	21 39 00	+11 33	15.9	DA	"	9 12	10 12	66	✓	5	He 40+40 Ne 20		"		7	63B 4030	"	"	"	0 W 42	Moon bright; some moon, Moderate Haze	2
75	"	G156-64	22 53 12	−08 06	17.0	DA comp.	"	10 58	12 12	90	120	5	40+40		"		7	"	"	"	"	1 W 23	½ window, little or no Haze	3
76	"	G128-7	22 48 57	+29 23	16.2		"	12 39	14 03	90	✓	3-4	40+40		"		7	"	"	"	"	3 W 48		4
77	"	G71-53	02 00 06	+01 05	14.5	idK0	"	14 23	15 37 16 10	74	✓	5	40+40		"		8	BL 16 030	"	"	"	1 W 41		5
78	"	GD 279	01 48 56	+46 45	13.0	Bp	"	15 51	16 10	19	12	5	"		"		8	"	"	"	"	2 W 25		6
79	"	Haug 63°-198	3 24 44	+63 54	12.7	B5	"	16 20	16 35	15	✓	4	"		"		8	"	"	"	"	1 W 14	Dawn	7
3480	JL6	G184-20	19 41 38	+15 57	13.0	sdG	Sept 1/2	7 28	8 03	35		2	He 40+40 Ne 40+40		W1	90 mm	8	BC 16030	3"	6.10	II a0 Bkd	1 W 29	Moon bright - used eliminator	1
81	"	GD 231	20 32 58	+16 49	15.3	DA5	"	8 22	9 42	80		1-2	He 20+20 Ne 20+20		"		11	63B 8030	"	"	D19 "	1 W 16	" " no "	2
82	"	GD 247	23 12 42	−07 16	14.7	sdG	"	10 15	11 00	45		1	He Ne		"		"	"	"	"	"	0 E 06	" " " "	3
83	"	Feige 7	0 41 12	−10 17	15.0	R	"	11 17	12 17	60		2	He Ne		"		11	—	"	"	"	0 E 16	" moderate " "	4

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, DENVER

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
			1953				1969																
N3484	JLG	Haug 55-8	01 18 10	+55 26	12.9	Em	Sept 19/20	13[29]	13[49]	20		2	He Ne		W1		8	1BL 16030	3"	6.10	IIaO BkΦ	1ω34	5
85	"	G 244-37	01 48 12	+64 11	13.2	dM	"	14[09]	14[35]	26		2	"		"		"	"	"	"	" DIG	0ω54	
86	"	G 244-36	01 48 12	+64 11	14.8	DA:	"	14[42]	15[37]	55		1	"		"		"	G3B 8030	"	"	"	2ω35	Slight contamination from -37 6
87	"	GD 41	3 02 42	+02 45	14.6	DA	"	15[51]	16[25]	30		2	"		"		"	"	"	"	"	3ω32	Dawn 8
				1970			1970																
N 3488	JLG	G 99-37	5 44 44	-00 10 49	15.0	DCp	Feb 11/12	10[44]	12[29]	105	✓	1	He 30+30 NeHe 40+40		W2		10	BL 16000	34	6.15	IIaO BkΦ MWP2 5m	4ω21	Bright sky; 45 min Moon
89	"	G 47-18	8 57 27	+33 04 02	15.2	DCp	"	12[42]	14[44]	122	✓	2	Ar 10+10		"		10	"	"	"	"	3ω28	" "
90	"	Feige 75	13 14 31	+13 01 22	14.3	sdO	"	15[47]	16[47]	60	✓	3	"		"		89	"	"	"	"	1ω14	" "
91	"	Feige 67	12 40 26	+17 42 08	11.6	sdO	"	16[55]	17[08]	13	✓	3	"		"		9	1341	"	"	"	2ω10	" "
3492	JLG	HL Tau 76	4 17 09	+27 14	15.0	DA	Dec 26/27	7[38]	8[51]	72	✓	3	He 20+20 Ne 20+20		W4		10	8313 8000	3"	6.15	D IG	3ω13	Bright sky 1
93	"	G 99-37	5 49 49	-00 10	15.0	DCp	"	9[09]	10[26]	82	✓	3-2	A 10+10		"		10	"	"	"	6 201	3ω46	" 2
94	"	Schwarzschild 3476	12 31 12	+14 13	14.3	SN	26/27	10[36]	11[03]	27	40	1	He "		"		10	"	"	"	"	2E48	" 3
				1970																			
N3495	JLG	G 44-32	10 40 20	+14 25	16.8	DC?	May 15/16	8[30]	10[00]	90	✓	5	He 10+10 Ne 10+10		W1		9	98B 4015	3"	6.17	IIaO BkΦ	2ω27	2/3 Δ1 Bright sky 1
96	"	+14°2513 B	12 30 51	+13 44	17.6	DM	"	10[16]	11[41]	85	✓	3	"		"		9	"	"	"	"	2ω18	" Bright sky + Haze + Cirrus Scattered Light 2
97	"	G 64-43	14 04 50	-01 11	15.8	DB	"	11[54]	13[02]	68	✓	3	"		"		9	"	"	"	"	2ω05	Δ1 Bright sky 3
98	"	G 178-30	14 28 26	+39 40	14.4	sdK	"	13[19]	14[26]	67	✓	2	He 30+30 Ne 30+30		"		11	BL1 16015	"	"	"	3ω06	Δ1 4
99	"	TON 264	16 47 58	+25 13	14.0	Bp	"	14[46]	15[35]	49	✓	3	"		"		11	"	"	"	"	1ω53	Δ1 5
W3580	JLG	Markarian 132	9 55 16	+55 03 20	15.5	DSO	May 17/18	8[30]	9[50]	80	✓	1	He 6+6 Ne 6+6		W2		11	98B 4015	3"	6.17	IIaO Bkd	3ω06	Δ1 Bright sky 1
01	"	LTT 5299(??)	13 39 00	-24 28 45	14.0?	—	"	10[19]	11[09]	50	F3	2	He 30+30 Ne 30+30		"		11	BL 1K15	"	"	"	0ω95	" 2
02	"	LTT 5454	13 57 43	-13 35	13.4	sdG	"	11[20]	11[48]	28	✓	2	"		"		11	"	"	"	"	1ω03	" 3
03	"	Feige 97	14 34 93	+30 14	10.0	A	"	12[10]	12[20]	10	✓	3	"		"		11	"	"	"	"	1ω02	" 4
04	"	G 17-200	16 21 23	+25 55	15.4	DA	"	12[34]	18[04]	80	✓	2	He 20+20 Ne 20+20		W3		9	63B 7045	"	"	"	0ω59	" 5
~~05~~		~~G 142-20~~													~~W3~~		~~9~~						~~DC~~
				1970			1970																
N3505	JLG	+18°2726	13 43 36	+7 58	11.0	sdMo	June 30	8[08]	8[15]	7	✓	3	He 40 Ne 40		W1	45m	9	BL1 16000	3"	6.16	IIaO Bkd	1ω20	Δ2 Dusk 1
06	"	G 61-35	13 08 40	+22 40	13.6	sdK	"	8[28]	9[00]	32		3	"		"		"	"	"	"	"	2ω38	Δ1 end dusk 2
07	"	Feige 103	14 50 18	+11 46	12.2	Bp	"	9[13]	9[22]	9		2	"		"		"	"	"	"	"	1ω20	Δ1 3
08	"	LTT 6194	15 28 41	-29 34	13.4	sdF	"	9[43]	10[18]	35		3	"		"		"	"	"	"	"	1ω37	Δ1 4
09	"	LTT 6307	15 46 17	-27 48	13.0	sdG	"	10[33]	10[58]	25		3	"		"		"	"	"	"	"	2ω01	Δ1 5
3510	"	LTT 6660	16 38 18	-15 40	13.3	sdG	"	11[08]	11[38]	30		3	"		"		"	"	"	"	"	1ω48	Δ1 6
11	"	G 139-38	17 25 22	+06 57	13.9	sdG	"	11[52]	12[36]	44		3	He 20+20 No 20+20		"		"	"	"	"	"	2ω00	Δ1 7
12	"	+7°8247	19 00 28	+70 35	12.7	Dp	"	12[35]	13[25]	30		4	He Ne 40		"		"	"	"	"	"	1ω94	Δ2 8
13	"	GD 398	21 51 13	+33 59	15.0	DA	"	14[04]	15[04]	60		4	He 20+20 Ne 20+20		"		"	63B 8000	"	"	"	0ω82	Δ1 9
14	JLG	Feige 87	13 38 50	+61 01	11.6	sdB	July 1	8[07]	8[12]	5	✓	3	He 40 Ne 40		W1	gld 220 Bkd	9	BL1 15015	3"	6.16	IIaO Bkd	1ω26	Δ1 Twilight 1
15	"	HZ 48	12 58 22	+41 10	13.8	A	"	8[23]	9[03]	40	✓	3	Ne 20+20		"	4m DIG	"	"	"	"	"	2ω57	" end twilight 2
16	"	HZ 45	13 22 26	+40 17	12.6	B	"	9[13]	9[26]	13	✓	3	He 40 Ne 40		"		"	"	"	"	"	2ω54	" 3
17	"	Ton 209	14 33 57	+23 55	12.3	B	"	9[36]	9[46]	10	✓	3	"		"		"	"	"	"	"	2ω04	" 4
18	"	G 138-16	16 14 11	+07 26	16.1	sdG	"	10[01]	11[25]	84	✓	3	He 10+10 Ne 10+10		"		"	98B 4000	"	"	"	2ω03	" 5
19	"	G 141-6	18 23 25	+07 21	16.1	sdK	"	11[40]	13[04]	84	✓	3	"		"		"	"	"	"	"	1ω33	" 6
3520	"	GD 272	21 58 10	+16 17	16.2	DA	"	13[15]	14[42]	87	✓	2	"		W2	Nau 220 gld 4m DIG	"	11	"	"	IIaO Bkd	0E23	" 7
21	"	Svolopoloway #2	18 46 29	+48 53	11.4	B	"	13[05]	13[07]	3	✓	3	He 20 Ne 20		117m		"	63B 8030	"	"	"	3ω14	" Dawn 8

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, SEATTLE, NEW YORK, CHICAGO

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		1970																					
N3522	JLG	G164-61	13 15 43	+39 58	14.1	sdG	July 3	8 38	9 04	26		2	Hk 2+0 He 2+0		LO	45	9	6 3 B 8° 00'	3"	6.16	IIa-O Baked / IIIa-J WP2	2 49	B1 Bright sky 1
23	"	GD 271	14 04 49	+12 15	15.0	sdG	"	9 15	10 15	60		2	"		"		"	"	"	"	"	3 11	" " 2
24	"	GD 194	15 51 09	+18 15	14.8	DA	"	10 31	11 28	57		2	"		"		"	"	"	"	"	2 37	Darks 3
25	"	G142-20	19 13 17	+14 25	15.0	HBA	"	11 51	12 51	60		3	"		"		"	"	"	"	"	0 38	4
26	"	GD 232	20 54 56	+18 13	15.0	DA	"	13 05	14 07	62		1	"		"		"	"	"	"	"	0 08	5
27	"	G 215-47	22 27 19	+51 01	13.1	sdG	"	14 28	14 38	10		4	"		"		"	"	"	"	"	0 E 45	Electricity double foil 6
28	"	GD 403	22 42 47	+44 06	13.5	sdG	"	14 43	14 58	15		4	"		"		"	"	"	"	"	0 E 44	7
N 3529	GWP	AC+70° 8247	19 00 24	+70 36	13.2 v	DC	Aug 13/14	9 23	10 22	59 m		2	He 2+3 Ne 1		—	—	3/10	98 B 4° 30'	3"	6.16	IIIa-F	1 W 03	Wx 4 fiters over slit on Aug 13/14, 14/15
3530	"	"	"	"	"	"	"	10 28	11 58	90 m			He 2+3 Ne 1									2 W 39	* Comp. over star also He 2
31	"	"	"	"	"	"	"	12 05	12 40	35 m			"				1/10					3 W 22	
32	"	LDS 678 A	19 18 48	-07 44	12.3 v	DA	Aug 14/15	8 15	8 35	20 m		2					2/8					D E 59	dirty sky + moon
33	"	AC+70° 8247	19 00 24	+70 36	13.2 v	DC	"	8 59	10 08	69 m			3C arc slow 2C 1 s He				3/8					0 W 53	Single trail exposure — blossom show 100%/hr
34a	"	"	"	"	"	"	"	10 15	10 59	44 m												1 W 45	
34b	"	"	"	"	"	"	"	11 03	11 28	25 m												2 W 14	Single trail exposure (edge to center of C2 window)
N 3535	"	W 1346	20 32 47	+24 57	11.5	DA	"	11 46	12 06	20 m			He 4 Ne 1				2/8					1 W 19	
36a	"	BD+28° 4211	21 49 51	+28 43		Op	"	12 16	12 18	1½ m							2C/8						comp window * 2
36b	"	"	"	"			"	12 18	12 21	3 m							2/8						* window * 2.
36c	"	"	"	"			"	12 22	12 29	7 m							2C/8					0 W 26	comp window * 2
N3537	"	v Mz 2	00 47 30	+05 18	12.4	DB	"	12 57	13 27	30 m			He 4 Ne 1				2/8					1 E 34	
38a	"	AC+70° 8247	19 00 24	+70 36	13.2	DC	Aug 15/16	7 58	8 31	33 m		2	He 4				8					0 E 40	STE C2
b	"	"	"	"	"	"	"	8 33	9 35	62 m			"				8						" change rate 80° E to 60° E at 853 *2
c	"	"	"	"	"	"	"	9 37	10 03	26 m			"				8					0 W 52	" stopped by clouds near end C2
39a	"	"	"	"	"	"	"	10 10	11 24	74 m			2+2				8					2 W 13	" rate 50° E C2
b	"	"	"	"	"	"	"	11 26	12 38	72 m			"				8					3 W 28	" " *2
N 3540	"	"	"	"	"	"	"	12 46	14 00	74 m		2	He 4				8					4 W 50	" change rate to 65° E at 13 44
N 3541	AHV	Grw +70° 8247	19 00 28	+70 37 32	13.2	DC	Aug 17/18	8:13	8:53	40 m		3	He	4	—	—	8/2	4° 30'	3"	6.16	IIIa-F	0 E 10	Single trail
2	"	"	"	"	"	"	Aug 18/19	7:31	7:52	21 m		3	"	"	"	"	"	"	"	"	"	0 E 07	Single trail; moonrise ½ halfway through
3	"	"	"	"	"	"	"	7:58	8:25	27 m		"	"	"	"	"	"	"	"	"	"	0 E 35	3 trails; stopped by clouds in North.
N 3544	"	BI Cyg No 12	20 31 35	+41 09 07	11	O	"	8:32	8:49	17 m		3	"	"	"	"	"	"	"	"	"	1 E 41	red overexp; blue underexp. !
N 3545	GWP	AC+70° 8247	19 00 24	+70 36	13.2	DC	Sept 10/11	9 33	12 24	171 m		2-3	He	4	—	—	10/3	98 B 4° 30'	3"	6.16	IIIa-F / IIa-O Baked	4 W 56	B4 analyzer O Ray right (west) image
N 3546 a	"	"	"	"	"	"	"	12 49	13 29	40 m				3									B4 — " — right (west) image (spurious North)
b	"	"	"	"	"	"	"	13 31	14:13	42 m												6 W 45	— " — left (east) image E Ray
N 3547 a	"	"	"	"	"	"	Sept 11/12	9 42	10 02	20 m		2	He	4	left comp window 2 * window		8/3						B4 left (east) image focus = 763
b	"	"	"	"	"	"	"	10 04	10 24	20 m					right comp. window * window * 2								right (west) O Ray focus = 72.8
N 3548 a							"	10 41	11 01	20 m													B4 analyzer O Ray
b							"	11 06	11 27	21 m													B4 E Ray
N 3549 a							"	11 39	11 59	20 m					* window * 2 (last image)								B4 reversed — linear analyzer.
b							"	12 04	12 25	21 m					Off 2 last image								

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, ORLANDO

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N3550 a	JDL	+70°8247	19 00 20	+70 36	12.5	DC	8/21/70	7^55	8^28	33	✓	2	He 15 Ne 10	10	W 1	10^m	8	98B 4°30	3.4	6/8	IIaO B+G+D	1^h34	B4 Analyzer 2.6^mm Short image East image 2 trails
b	"	"	"	"			"	8^36	9^16	40	60	1					8	"	"	"	"	2^h23	" 2.6^mm Long image West image "
51a	"	"	"	"			"	10^09	10^30	21	✓	2	He 10 Ne 10		"		10	"	"	"	"	3^h37	" 1.7^mm Short East image Many trails
b	"	"	"	"			"	10^34	11^09	35	✓	2			"		10	"	"	"	"	4^h17	" 1.7^mm Star East image Bright Flare West image
52	"	VMa2	00 47 35	+05 17	12.7	DG	"	11^29	11^54	25		1	He 60 Ne 40		"		10	BL 1 15°30	"	"	"	1^h44	Δ1 Bright Flare
3553	JDL	+70°8247	19 00 20	+70 36	12.8	DC	Sept 20 1970	7^36	9^00	84	—	2	He 60	Ne 40	W 1	10^m	11	63B 8°30	3.1	6/8	IIaO B+G+D	2^h11	Above Eyepiece north, equator Zeeman plates, west to right. Bottom Spectra Slanting Top E W Slant straight Short East image Short West image 2 images 2 Δ2c West of E, 1 image W Image Δ1c East B4
b	"	"	"	"			"	9^07	9^38	31	—	3					11	"	"	"	"	2^h49	
54	"	"	"	"			"	9^58	10^21	23	—	3	He 15	Ne 10	W 1		11	48A 4°00	"	"	"	3^h32	O Image Δ1c East B4
b	"	"	"	"			"	10^30	11^12	42	—	3					11	"	"	"	"	4^h21	Some smear E Image Δ1c West
3555	"	VMa2	00 47 35	+05 17	12.7	DG	"	11^26	11^59	33	✓	2	He 60	Ne 40	W 1		11	BL 1 15°00	"	"	"	1^h37	Bright Flare
3556	AHV	+70°8247	19 00 28	+70 37 32	12.8	4155	Oct 19/18	6^57	7^25	28	✓	3	He 4	Ne			2/8	4°30	3½	6/6	IIaO BL	1^h25	Zeeman Analy (1", λ4200/4 plate)
7	"	"	"	"	"	"	"	8^29	9^38	69		3	He 4	"	"		2/8	"	"	"	103aF no filt	4^h36	" " (", λ5200/4 plate) worn up
3558	"	"	"	"	"	"	Oct 19/19	7^29	8^13	46	(90)	2	He 4	"	"		2/10	"	"	"	IIaO BL		" " (", λ4200/4 plate) stopped by clds
N3559	SWP	AC+70°8247	19 00 28	+70 37	12.8	DC	Oct 19/20	6 48	7 41	53^m		1	He	3 (over stars)			2/10	98B 4°30	3°	6/6	IIa-O baked	2^h46	PF Zeeman Analyzer = PFZA λ4200/4 plate blue end south
3560	"	"	"	"	"	"	"	7 48	8 29	41		1	"	3			"	"	"	"	"	3^h25	——— ———
3561	"	"	"	"	"	"	"	8 42	9 25	46		1	"	3			"	"	"	"	"	4^h33	——— ——— blue end west
3562	"	"	"	"	"	"	"	9 38	11 27	109		1	1+1	+Ne flash			"	"	"	"	103a-F	6^h34	——— ——— λ5200/4 plate red—south
3563	"	"	"	"	"	"	Oct 20/21	6 40	7 35	55^m		2	2+2	He			"	"	"	"	IIa-O baked	2^h44	PFZA λ4200/4 blue end south
3564	"	"	"	"	"	"	"	7 48	8 44	56^m		1	He	2+2			"	"	"	"	"	3^h54	" " blue end west
3565	"	"	"	"	"	"	"	8 58	10 58	120^m		"	He	1+1	+Ne flash		"	"	"	"	103a-F	6^h08	" λ5200/4 red end south
N3566	JDL	AC+70°8247	19 00 24	+70 36	12.8	λ4135	Oct 28/29	6 46	9 41	175	130	1	He	2+2	3		Δ2/10	98B 4°30	3.1	6/10	103aD	5^h22	PFZA λ5200, Reduced south. Bright sky!!
67	"	G158-100	32 32	-12 17	15.6	[illegible]	"	9^57	11^10	73	✓	1	Ne	10+10			Δ1/10	"	"	"	IIaO Blue	1^h20	sky very bright (dust+NS?)
68	"	GD38	03 00 45	+37 54	15.6	DA	"	11^27	12^42	75	✓	1	"	Ne 10	W 1		11	"	"	"	"	0^h24	"
69	"	Van Altena 764	04 33 56	+14 09	15.8	G [illegible]	"	13^11	15^51	160	✓	1-2	He 20+20	Ne 20+20	W 1		11	63B 7045	"	"	"	2^h01	"
3570	"	G99-47	05 54 58	+05 22	14.7	DC	"	15^39	16^48	50	✓	1	"		W 1		11	"	"	"	"	1^h38	"
71	JDL	AC+70°8247	19 00 21	+70 36	12.8	λ4135	Oct 29/30	6^44	9^14	150	✓	2-3	He 3+3	Ne 3+3	W 1		Δ3/10	98B 4°30	3.1	6-10	III IIaD Blue	4^h39	PFZA λ5200 Red south
72	"	Wolf 1346	20 33 09	+24 59	11.2	DA	"	9^30	10^10	40	✓	2	"		W 1		Δ2/10	"	"	"	IIaD B4D	4^h23	" " " " for comparison
73	"	LTT 329	00 36 01	-21 01	15.0	DA	"	10^28	11^27	59	✓	2	He 20+20	Ne 20+20	W 2		Δ1/10	63B 7045	"	"	IIaO B4D	1^h36	
74	"	LTT 884	01 24 04	-26 07	15.3	—	"	11^43	12^43	60	NG	2	"		W 2		"	"	"	"	"		
75	"	H67-170	04 18 47	+17 26	13.2	dK	"	14^38	14^53	15	✓	2	"		W 2		"	"	"	"	"		
76	"	H67-205	04 23 41	+17 57	12.8	dM	"	15^00	15^10	10	✓	3	He 30 Ne 30		W 2		"	"	"	"	"		
77	"	GD 257	05 49 12	+00 05	14.8	DA [illegible]	"	15^22	16^12	50	✓	4	He 15+15 Ne 15+15		W 2		"	"	"	"	"		

Clouds; exposed 2 40^min

CHARLES R. BADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO. N	OBS.	OBJECT	R. A. 1971	DECL.	MAG.	SP.	DATE 1971	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS	
N3578	JLG	Neb. NGC1514	4 06 52	+30 39	—	Em.	Mar. 29/30	7 38	8 38	60	✓	3	He 40+40 Ne 40+40		W1	90°	11	BL1 16°15	3"	6.11	IIa-O 8+8 D19	5ʷ 11	Moon Bright, Patch 45" so. of star	1
79	"	G99-47	5 54 56	+5 22	14.7	DC	"	8 57	9 57	60	✓	3	He 10+10 Ne 5+5		"		8	9B 4°15 B	"	"	"	4ʷ 44	Some mooy	2
3580	"	G195-19	9 14 00	+53 33	14.8	DC	"	10 29	12 09	100	✓	3	He 20+20 Ne 20+20		"		10	BL1 16°15	"	"	"	3ʷ 36	Dark sky	3
81	"	HZ 22	12 13 24	+36 49	12.7	B2	"	12 39	12 43	20	✓	3	"		"		11	"	"	"	"	1ʷ 11		4
82	"	Jon 1502	12 18 09	+20 55	13.8	HBA	"	12 57	13 40	43	✓	4	"		"		10	"	"	"	"	2ʷ 04		5
83	"	GD 318	12 39 02	+48 49	13.5	B0f	"	13 30	14 15	25	✓	3	"		"		10	"	"	"	"	2ʷ 18		6
84	"	HZ 43B	13 15 02	+29 15	12.9	9 140	"	14 39	15 39	60	✓	4	He 10+10 Ne 10+10		"		9	9B 4°15	"	"	"	3ʷ 06	2" separation, little contamination 3ʷ 3ʳ from A	7
85	"	GD 349	15 40 11	+59 44	13.0	F5	"	15 54	16 26	30	✓	2	"		"		9	"	"	"	"	1ʷ 28	Thin cirrus clouds	8
N3586	JLG	G57-29	11 55 18	+18 31	12.7	DF	Mar. 30/31	12 31	13 36	65	✓	2	He 10+10 Ne 10+10		W2	90°	9	9B 4°15	3"	6.11	IIa-O B+8 D19	2ʷ 26	No Moon. Wide double Little or no overlap	1
87	"	HZ 22	12 13 24	+36 48	12.7	B2	"	13 49	14 10	21	✓	2	He 20+20 Ne 20+20		"		10	BL1 16°15	"	"	"	2ʷ 42	"	2
88	"	TN 673	12 54 46	+28 15	12.9	Comp.	"	14 22	14 40	18	✓	3	"		"		10	"	"	"	"	2ʷ 31	"	3
89	"	TN 1588	13 21 01	+21 36	12.8	HBA	"	14 52	15 12	20	✓	1	"		"		10	"	"	"	"	2ʷ 36	"	4
3590	"	G 166-58	14 56 55	+29 44	12.5	DA:F	"	15 23	16 25	62	✓	1	He 10+10 Ne 10+10		"		9	9B 4°15	"	"	"	2ʷ 14	Sky bright	5
N3591	JLG	SU Tau	5 47 24	+19 03	12	Gp	March 31/April 1	7 26	7 41	15	✓	2	He 30+30 Ne 20+20		W1	90°	10	BL1 16°15	3"	6.11	IIa-O B+8 D19	2ʷ 42	Very Bright Moon	1
92	"	HZ 22	12 13 24	+36 49	12.7	B2	"	12 26	12 47	21	✓	2	"		"		10	"	"	"	"	1ʷ 23	No Moon	2
93	"	G164-46	13 07 14	+40 36	14.8	dK	"	13 03	13 53	20	✓	2	He 20+20 Ne 20+20		"		9	6 3B 8°00	"	"	"	1ʷ 35	"	3
94	"	Feige 96	14 29 00	+21 24	13.1	HBA	"	14 18	14 30	12	✓	2	"		"		9	"	"	"	"	0ʷ 50	"	4
95	"	TN 210	14 35 27	+28 51	15.5	DA:	"	14 40	16 10	90	✓	2	"		"		9	"	"	"	"	2ʷ 05		5
N3596	JLG	TN 1383	11 16 35	+20 20	13.2	HBB	May 20/21	8 30	→ Here on change: 9 05	35	✓	2	He 30+30 Ne 20+20		W1	36°	10	BL1 16°0	3"	6.12	IIa-O B+8	1ʷ 59	No moon	2
97	"	G121-27	11 51 08	+27 41	13.2	sdK	"	9 17	9 52	35	✓	1	"		"		"	"	"	"	"	2ʷ 06		3
98a	"	Feige 57	12 07 25	+07 39	12.0	B	May 20/21	10 12	10 27	15	✓	<1	"		"		"	"	"	"	"	2ʷ 26	Accidentally on same plate NG	4+6
98b	"	G240-51	17 13 22	+69 33	13.4	B	"	11 32	12 30	57	✓	<1	"		"		"	"	"	"	"	0ᴱ 37		5
99	"	HZ 22	12 13 24	+36 49	12.7	B2	"	10 40	11 10	30	✓	<1	"		"		"	"	"	"	"	3ʷ 03	High wind Stopped	5
N3600	JLG	HZ 22	12 13 24	+36 49	12.7	B2	May 22/23	9 54	10 24	30	✓	1-2	Ne 20+20 He 30+30		W1	40°	10	BL1 16°15	3"	6.12	IIa-O B+8	2ʷ 24		1
01	"	G200-40	14 26 44	+53 55	13.6	sdM0	"	10 35	11 15	40	✓	2	"		W1		"	"	"	"	"	1ʷ 03		2
02	"	G200-39	14 26 42	+53 55	15.7	DB	"	11 24	12 28	62	40	2	He 10+10		W1		11	9B 4°30	"	"	"	2ʷ 15		3
03	"	G240-51	17 13 22	+69 33	13.4	DA	"	13 35	14 50	75	✓	2	He 10 Ne 5		W1		11	9B 4°30	"	"	"	1ʷ 51	Taken by moisture with analyzer W. blue — Zeeman j, B2, 1.1 Hardened	4
N3604	JLG	GD 267	12 58 24	+04 40	15.0	DA	May 23/24	8 41	9 12	31	✓	3	He 10+10 Ne 5+5		W1		10	9B 4°30	3"	6.12	IIa-O B+8	0ʷ 32		1
05	"	GD 479	12 42 12	+65 02	16.0	DB	"	9 27	10 42	75	✓	3-4	"		"		"	"	"	"	"	2ʷ 17	Sky Bright	2
06	"	HZ 22	12 12 48	+36 45	12.7	B2	"	10 55	11 12	17	✓	2	He 30+30 Ne 20+20		"		"	BL1 16°30	"	"	"	3ʷ 17		3
07	"	−9° 4395	16 27 04	−09 16	9.4	He rich	"	11 20	11 22	2	✓	2	"		"		"	"	"	"	"	0ᴱ 46	Single trail	4
08	"	HD 149382	16 32 59	−03 57	9.3	sdO	"	11 28	11 31	3	2	2	"		"		"	"	"	"	"	0ᴱ 44	2 trails	5
09	"	−1° 3438	18 02 31	−01 00	9.5	He rich	"	11 41	11 44	3	4	2	"		"		"	"	"	"	"	2ᴱ 00	2 trails	6
3610	"	GD 269	13 31 52	+03 29	15?	DA	"	12 12	13 20	68	✓	2	He 10+10 Ne 5+5		"		"	9B 4°30	"	"	"	4ʷ 07	Sky very bright	7
11	"	+70° 8247	19 00 26	+70 35	12.7	DB:	"	13 47	14 48	61	✓	2	He 10 Ne 10		"		"	"	"	"	"	0ʷ 06		8
12	"	CIT # 11	20 28 32	+39 05	14?	Pec.	"	15 15	15 36	21	10 min 30 min	3	He 10 Ne 5+5		—		"	11	"	"	0 98-11	0ᴱ 43	½ Bl 10 min ½ Bl 20 min	9

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	1971 DATE	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N3613	GWP	SR 373 star g	18 53 09	+18 32	12.7		Jul 16/71	9 23	9 33	10m	✓	2	He	20s			9	988 4°15'	3"	6 12	IIa-O baked	1E30	PA 191.6 "g" at left end of window
b	"	" " q	"	"	14.1		"	9 23	9 53	30m	✓										"	1E10	PA 180° after 10min
N3614 a	"	" " d	18 52 54	"	16.0		"	10 15	12 05	110m	✓	2	He	10+10							"		PA 79° d@ left end of window
b	"	" " e	"	"	16.5		"	"	"	"	✓										"	1W03	
3615	"	" a	18 52 40	+18 31	12:		"	12 17	12 29	12m	x½	"	He	20s							"	1W27	PA 90° left ½ of window clouds!
3616 a	"	h	18 53 15	+18 31			July 17/71	9 05	9 17	12m		2-	"	"							SR = Schmidt-Kalu Star Ring	1E42	90° left end C2 window
3616 b	"	i+I	18 53 17	+18 30			"	9 25	10 10	45m		2-	He	10+10								0E49	214° I @ left end of *2 window
c	"	V+W	18 53 09	+18 32			"	10 22	11 07	45m												0W08	99.2 W @ left end of right C2 window
3617 a	"	f	18 53 01	+18 32			"	11:18	11 38	20m (f)											IIa-O baked	0W39	99.2 f @ left end of *2 window
	"	χ	"	"			"	11:18	12 01	43m (χ)			He	10+10								1W03	90°
b	"	C+D	18 52 46	+18 32			"	12 20	12 35	15m												1W37	217.4 C in left C2; D in right C2
3618 a	"	t+u	18 52 37	+18 30			"	12 49	13 06	17m		2+	He	20s								2W08	274.1 U @ left end of *2
b	"	s	18 52 34	+18 29			"	13 08	13 22	14m		2+										2W24	@ right end of *2
3619 a	"	SR 519 star 1+2	18 44 53	+01 13			July 18/71	9 02	9 47	45m		2					10					1E00	103.7 #1 @ left end of *2 window
b	"	" 9	18 44 48	+01 14			"	9 51	11 01	70m		2										0W14	90° left end *2 window
c	"	" 7	18 44 42	+01 11			"	11 03	11 07	4m		2	He	10+10								0W20	90° Center of *2
d	"	" 3	18 45 00	+01 11 40			"	11:01	11 46	35m		2										0W59	90° right end of *2
e	"	" 4	18 44 55	+01 10			"	11 49	12 29	40m		2										1W42	" right end of RC2
3620		SR 384 a+b	19 09 19	+15 50			"	13 13	14 43	90m		2	He	10+10								3W33	206°.3 b @ right end of *2 [out of focus]
3621 a		SR 519 star 1+9	18 44 46	+01 14			July 19/71	8 45	9 45	60m		2	He	10+10								0E58	91.6 #1 @ left edge of RC2; 9 in LC2
b		SR 373 " j	18 53 20	+18 28			"	9 58	10 21	23m		2	"	"								0E30	left end of *2 (clouds).
c		" o+p	18 52 57	+18 24			"	10 39	11 09	30m		2	"	"								0W18	118.4; taken in #3 window p @ right end *2 o right end of RC2
d		" q	18 52 44	+18 24			"	11 11	11 19	8m		2	"	"								0W28	center of *2
3622		SR 384 a+b	19 09 16	+15 50			"	11 36	12 17	41m		2	"	"								1W10	clouds 206°.3 f @ left end of *2
N3623	JLG	TN 788	15 13 15	+24 16	12.8	sdB	Aug 19/71	8 02	8 24	22	30	1-2	He 40+40 Ne 30+30		untrailed Spectra		10	BL1	3"	6.20	IIa-O Bkd	3W15	Clouds
24	"	G 138-24	16 21 51	+17 31	12.0	sdB	"	8 37	8 49	13	13	1	"				10	16 045 11	"	"	"	2W32	Clouds Stood
25	"	Wolf 1346	20 33 15	+24 57	11.5	DA	"	12 42	13 12	30	✓	3	"		W1	40cm	10	11	"	"	"	2W44	Zeeman analyzer; ¼ blue; E image at bottom of eyepiece
26	"	W 1346	"	"	"	DA	"	13 30	13 53	23	30 NG	3	"		"	"	10	633 8°45	"	"	"	3W04	"
27	"	L 1512-34B	23 42 30	+32 22	13	DA	"	14 17	15 05	48	✓	3	"		"	"	10	"	"	"	"	1W29	"
28	"	L 1512-34B	"	"	"	DA	"	15 12	16 06	54	60	3	"		"	"	10	"	"	"	"	2W30	" Dew?
N 3629	JLG	TN 788	15 13 15	+24 16	12.8	sdB	Aug 20/71	7 59	8 39	40	✓	1-2	He 40 tue Ne 30+30		W1	40cm	10	BL1 16 045 633	3"	6.20	IIa-O Bkd 65°C	3W54	Bright sky Clouds
30	"	GD 216	18 48 16	-09 59	14.4		"	8 58	9 58	60		1	"		"	"	9	8°30	"	"	"	1W18	" Heavy clouds
31	"	Wolf 1346	20 33 15	+24 57	11.5	DA	"	10 30	10 55	25	✓	1	"		"	"	9	"	"	"	"	0E30	Zeeman Analyzer ¼ blue ord
32	"	Wolf 1346	"	"	11.5	"	"	11 18	11 45	27	✓	1	"		"	"	9	9015	"	"	"	1W20	Clouds "
33	"	+73°803	21 26 45	+73 30	13	"	"	12 08	3 10	62	✓	2	"		"	"	9	"	"	"	"	1W53	" "
34	"	+73°8031	"	"	13	"	"	13 16	14 16	60	✓	2	He 30+30 Ne 20+20		"	"	9	"	"	"	"	2W59	"
35	"	L 1512-34B	23 42 30	+32 22	13	"	"	14 37	15 37	60	✓	2	"		"	"	9	8°30	"	"	"	2W04	Clouds "
N3636	JLG	+73°8031	21 26 45	+73 30	13	DA	Aug 21/71	11 12	12 32	80	✓	2	He 30+30 Ne 20+20		W1	40cm	9	638 8000	3"	6.20	IIa-O Bkd CS	1W38	Clouds Zeeman analyzer ¼ blue (corrected ord)
37	"	+82°3818	21 35 40	+82 54	13	"	"	12 58	14 08	70		3	"		"	"	9	"	"	"	"	2W46	- "
38	"	L 870-2	01 36 31	-05 07	13.4	"	"	14 22	15 42	80	100	2	"		"	"	9	"	"	"	"	0W49	- "

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1971	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
N3639	526	+70°8247	19 00 26	+70 37	13	A3 V35	Aug 22/23	9^02	10^02	60	✓	1	He Ne	1	W1		9	98B 4030	3.0	6.20	098-11 W1	1^W18	For Spectrophotometry Δ1
40	"	Wolf 1346	20 33 15	+24 57	11.5	DA		10^14	10^42	28	✓	1	"		"		9	"			"	D^E25	in red Δ2
41	"	+82°3818	21 35 40	+82 54	13	DA		11^11	12^22	71	✓	1	He 30+30 Ne 20+20		W2		10	63B 7040			IIa0 13k & W2	1^W03	Zeeman; λ/4 blue out. 1.1 MM
42	"	VMa 2	00 47 38	+05 17	13	D6		12^46	13^36	50	✓	3	"		"		10	"			"	0^E54	"
43	"	L870-2	01 36 31	-05 07	13.2	DA5		13^41	14^34	58	✓	2	"		"		10	"			"	0^E40	"
44	"	L870-2	"	"	"	DA5		14^45	15^37	52	✓	2	"		"		10	3005			"	0^W18	clds "
N36 45	MVP +MSP	Wilson 10704	18 13 45	-15 57 35	10.1	B8	Aug 31	8:42	8:46	4	x1.5	1+	He 60+60 Ar 25+25		W2		8	BL1 16°25'	3.0	6.25	IIa0 (b)	1^W25	MVP = Pentan ♂
46		WW VUL	19 24 46	+21 09 06	109-12.4	A3e	/ Sep 1	9.54	10 09	15	✓	2+										1^W36	MSP = Pentan ♀
47		EP VUL	19 32 06	+23 35 31	110-13.8	K5e		10.40	10.55	15	x4	3										2^W14	
48		Lk Hα 120	21 00 10	+50 14 23	12.9	pec		11.16	11.56	40	✓	3										1^W48	
49		Wilson 13775	21 54 01	+32 30 34	10.8	dG2		12.12	12.27	15	✓	3+										1^W25	
50		21 CEP	22 55 02	+58 30 57	11.9-13.5	dG8e		12.51	13.21	30	✓	2-3										1^W18	Arc, star superposed.
51		SV CEP	22 30 59	+73 31 49	10.1-12.4	A0		15.27	15.38	11	✓	3										4^W09	
52		VX CAS	00 29 44	+61 50 35	10.7-13.3	A0		16.07	16 23	16	✓	3										2^W45	
53		AS 305	16 09 55	-18 34 32	12var		Sep 1/2	7.41	8.11	30	x2	2			W1							2^W56	
54		AS 309	16 47 38	-14 20 58	12.5			8.31	8.51	20	✓	2										3^W00	
55		Wilson 10704	18 13 28	-15 55 35	10.1	B8		9.12	9.15	3	✓	2										1^W57	
56		VV SER	18 27 02	+00 09 35	11.6-12.6	A2eβ		9.29	10.10	41	✓	3			W2							2^W38	
57		EP VUL	19 31 44	+23 37 15	11.0-13.8	K5e		10.38	11.08	30	✓	3+			W1							2^W32	
58		Wilson 14226	22 37 30	+02 22 47	10.1	dF2		11.30	11.35	5	✓	3+			W2							0^E05	
59		V925 AQL	19 40 42	+11 46 14	10.1-11.3	K5		11.50	12.01	11	✓	3+										3^W17	
60		25 CEP	22 54 42	+58 32 10	11.9-13.5	dG8e		12.20	12.54	34	✓	3+										0^W56	
71		BM AND	23 35 55	+48 16 20	12.4-14.6	PSe		13.13	14.11	58	✓	3-										1^W31	
72		EO PER	02 48 32	+57 13 09	12.4-13.3	cBoe		14.26	14.47	21	✓	2-3			W1							1^E05	
73		Wilson 2563	04 23 24	+16 53 59	10.4	dK4		15.42	15.47	5	✓	3			W2							1^E39	
74		RZ PSC	01 08 08	+27 48 27	11.3-13.5	K0 V		16.04	16.14	10	✓	3										2^W02	
N36 75		XY PER	03 47 43	+38 53 46	9.2-10.6	B6+A2II		16.30	16.34	4	✓	3										0^E17	Combined light
N36 76	526	GD 279	01 50 19 1972	+46 52 03	13.0		1971 Dec. 20/21	7^08	7^33	25		2	He Ne 30+30		W1	40^m	9	BL1 14°30	3.0	6.12	IIa0 Bk+d	6^E11	clouds, slight haze Δ1 Seeing 1
77	"	Feige 26	02 38 40	+03 48 48	12.9		"	8^17	8^42	25		2	" 20+20		"		9	"	"	"	"	6^E13	clouds Δ1 Eight trouble 2
78	"	GD 50	03 47 26	-01 03 14	13.8		"	8^54	9^50	50		2	"		"		9	"	"	"	"	0^W12	" sky bright Δ1 3
79	"	40 Eri B	04 14 11	-07 37 51	9.5	DA	"	10^03	10^12	9		2	"		"		9	"	"	"	"	0^W08	Heavy clouds, sky bright Δ2 4
36 80	"	"	"	"	"	"	"	10^19	10^40	21		2-1	"		"		9	15°30	"	"	"	0^W37	" " Δ2 5
81	"	"	"	"	"	"	"	10^34	10^59	5		1-2	"		"		8	63B 5°30	"	"	"	0^W35	" " Δ1 6
82	"	"	"	"	"	"	"	12^00	12^05	5		1-2	"		W2	40^m	8	3°30	"	"	IIa0 Bk & slower emission	2^W02	" " Δ1 7
83	"	"	"	"	"	"	"	12^12	12^23	11		1	"		"		8	"	"	"	"	2^W20	" " Δ2 8
84	"	"	"	"	"	"	"	12^27	12^33	6		1	"		"		8	"	"	"	"	2^W30	" " Δ1 9
85	"	G 112-1	07 10 44	+70 09 47	15.0	A2	"	12^45	14^07	82		2	"		"		8	"	"	"	"	1^W06	" " Δ1 10
86	"	Ton 10	08 42 21	+26 09 12	14.6	D B	"	14^30	15^54	84		3	"		"		8	"	"	"	"	1^W22	" " Δ1 "

CHARLES R. HADLEY CO., PATHFINDERS, LOS ANGELES, SAN FRANCISCO, NEW YORK, CHICAGO

NO.	OBS.	OBJECT	R. A.	DECL.	MAG.	SP.	DATE 1972	EXPOSURE BEG.	EXPOSURE END	EXPOSURE TOTAL	CORR. EXP.	SEEING	COMP. KIND	COMP. EXP.	CALIBRATION AUX.	CALIBRATION DIRECT	SLIT	GRATING OR TILT	CAM.	CAM. FOCUS	EMULSION	H. A. END	REMARKS
			1972																				
N3687	JB	40 Eri B	04 14 04	-07 42	9.5	DA	Feb. 22	9 31	9 33	2		2	He 20+20				8	63B	3"	616	IIa0 Bkd	3 41	Moon Δ1 No dM contamination!
88	"	"	"	"	"	"	"	9 38	9 40	2		2	Ne 20+20				"	7015	"	"	"		" Δ1 " 2
89	"	"	"	"	"	"	"	9 44	9 46	2		2	Ar 15+15				"	7030	"	"	"		" Δ1 " 3
90	"	"	"	"	"	"	"	9 52	9 55	3		4	Ne 20+20 He 20+20				"	7045	"	"	"		" Δ2 " 4
91	"	"	"	"	"	"	"	10 01	10 04	3		4	He 50+50 Ne 50+50				"	"	"	"	"		" Δ1) may filter same dM 5
92	"	"	"	"	"	"	"	10 10	10 14	3		2	Ar 35+35				"	9°00	"	"	"		" Δ1 " " " No dM 6
N3693	JB	Ton 927	08 31 49	+20 33	11.0	B	Apr 12 1973	9 32	9 51	13	✓	<1	He 30+30 Ne 30+30				10	BL1 15°15	3"	615	IIIa0 Bkd	1 45	Δ1 1
N3694	JB	Ton 13	9 21 06	+27 09	12	B	Feb. 9	12 29	12 51	22	✓	3	He 30+30 Ne 20+20		W2		10	BL1 15°15	3"	615	IIa0 Bkd	1 04	Δ2 Clds, Brite Sky 1
N 95	"	SN 1972R	9 20 03	+51 04	17+	—	"	13 09	14 26	69	X3	3	He 20+20		W3		9	63B 7°40	"	"	"	2 49	4m Δ1 Many bedoubles or fuzzy 2
N 96	"	HZ Her	16 56 52	+35 22	15	A5	"	15 18	17 00	102	X2	2	He 30+30 Ne, He 40+40		W2		10	BL1 15°15	"	"	"	2 23	Δ1 Heavy clouds 3
N3697	RJB	GX5-1/4	17 59 33	-25 04 00			Aug 20/21	07 50	08 00	10		2	He 40+40 Ne 10+10				10	BL1 15°20'	3"	625	IIa0/Bkd HWP2/4	0 41	Minimum
N3698	"	GX5-1/3	"	"			"	08 12	08 24	12		x	"				x	"	"	"	"	0 46	
N3699	"	Cyg X2	21 43 35	+38 11 56	~15	—	"	08 40	10 08	88		"	"				"	"	"	"	"	1 23	
N3700	"	Bonn CL4/A	20 49 48	+31 21 11	—	—	"	10 20	11 52	92		"	"				"	"	"	"	"	1 14	

Use of the Prime Focus Spectrograph has been discontinued. This log is closed.

R. J. Brucato
June 23, 1982